REA response to the Renewable Energy Strategy

Introduction

The Renewable Energy Association is the largest renewable industry body in the UK, with 550 member companies. The Association and its members are active across the full range of sectors covered by the Renewable Energy Strategy (RES) and European Renewable Energy Directive (RED) including electricity, heat and transport fuels. The REA is therefore in a unique position to respond comprehensively to this consultation. We are also a participant in the wider Energy 2020 Consortium and commend its outputs and the Energy 2020 Manifesto, attached as Annex 7.

We share Government's objective to achieve a comprehensive and far-reaching Strategy, so would welcome the opportunity to expand upon any of the points made, and we look forward to working with BERR as it is further developed.

We welcome the emerging strategy described in the consultation document (which we refer to here as the 'document') as a step change in the way Government views renewables policy. There is recognition that a wider range of sectors will need to be involved, engaging energy users as well as suppliers. We are pleased to see acceptance that a renewable heat mechanism is required, that the RO cannot readily support small-scale generation and that sustainable biofuels have a key role to play in reducing transport emissions.

The renewed focus on energy efficiency is also welcome as we believe renewable energy is complementary (and in some ways subordinate to) energy conservation.

We have structured our response in three sections:

1. **General points** – overriding principles that apply throughout our response (Pages 1 to 7)
2. **Proposals for each sector** – our recommendations to enable each sector to reach its potential contribution to the overall target (8-27)
3. **Responses to questions** – this provides answers to the questions posed in the consultation document (28-47)

Separate Annexes are presented (as listed on page 48)

In addition to stating the principles and policies we advocate, we also illustrate some *Dos and Don'ts* – proposed solutions and issues to be resolved.

Section 1: General points

There are six overriding priorities that apply throughout the response, these are:

- The need for speed
- Reaching and exceeding the target
- A broad and coherent approach
- Energy conservation and the energy hierarchy
- The contribution of energy users and consumers
- Consistency and investor confidence

Each is expanded on below but in summary the strategy should be:

☆ Urgent ☆ Ambitious ☆ Holistic ☆ Efficient ☆ Inclusive ☆ Consistent

The need for speed URGENT

The target now requires deployment at an unprecedented rate, so the sooner the UK can accelerate development the better. Of the three sectors, heat, transport and electricity, the latter is the most developed, yet it still only makes up around 5% of total electricity, roughly doubling in five years. The target for 2020 will require more than a six-fold increase in about ten years. The increases for heat and transport will be even higher.

Don't act too late; only eleven years to 2020 ***Illustrating the issue***

The proposed UK target now requires a compound annual growth rate of about 18%. If we remain on the present track while we work up the strategy and then the Action Plan required by the Renewable Energy Directive (by 2009 and 2010 respectively), we would then face the more daunting prospect of required growth of 23% each year until 2020.

Delivering timely measures that are good enough is preferable to taking too long over the design of perfect policy – especially as perfection is elusive.

Some outcomes of the strategy will require primary legislation – such as the incentives for heat and decentralised renewables. These powers should be secured through the current Energy Bill, rather than by delaying until a legislative opportunity arises after finalisation of the RES. The REA has assisted in drafting amendments to provide these powers in the Energy Bill, and the debate has suggested there is a great deal of support across all political parties. The current Planning Bill similarly offers scope for resolving some issues around planning consents.

With the enabling powers in place, the policy detail can be elaborated in the RES and implemented via secondary legislation far more rapidly.

Renewables deliver energy security and price stability ***Part of the solution***

Renewables contribute to the UK's other key energy policy objectives not just the environmental one.

A greater use of renewable energy enhances security in the light of dwindling UK fossil fuel reserves, increasing import levels, geopolitical risks and warnings by the IEA of an imminent "energy crunch".

The cost of most renewable energy supplies is also highly predictable, as it is predominantly defined by the initial capital cost, with low operating costs and no externalities and legacy costs.

The Government's approach to energy costs needs to be changed to reflect these realities. The traditional comparison of costs per kilowatt hour is no longer appropriate if it ignores the externalities of emissions, waste storage etc. Nor does it reflect the comparative stability of known costs of renewable energy equipment against highly uncertain future imported mineral fuel costs.

Growth in renewables is an investment in the future. As Sir Nicholas Stern concluded, the longer we delay, the more it will cost.

Reaching and exceeding the target AMBITIOUS

The UK has Europe's best resource of wind, tidal and wave energy, plenty of sunshine and a well-developed agriculture sector. Furthermore, a benefit of being so far behind most other European countries in renewables deployment is that we have greater untapped potential and can draw on the experiences of others.

Do: Shoot above the target ***Part of the solution***

We should establish a policy portfolio to take us above the 15% mandatory target for 2020 – the REA advocates at least 18%. This will provide some contingency for shortfalls in any individual sector, especially as the scope for over-achievement in most areas is limited.

In this context, the decision by the Government to reduce targets under the RTFO is at best unhelpful and at worst unjustified on the basis of the evidence presented to the Gallagher Review.

It would be a very high risk strategy to assume that we could compensate for underachievement by buying in surpluses from other countries. Most Member States view their targets as highly demanding, and if there is any market at all in over-delivery, it is likely to be illiquid and expensive (contrary to the assertion in the document).

The 2020 target represents only a staging post to a contribution far greater than 15%. It is likely that our 2050 targets will require a fully decarbonised energy sector. All our energy was renewable before the industrial revolution and, ultimately, ever scarcer and costlier mineral fuel resources and the need to mitigate climate change must drive us back to a wholly sustainable energy mix. If we don't achieve this in a controlled way, catastrophe is likely to force it upon us.

As similar issues face all other nations too, an explosive world market in renewable energy products and services is emerging. This offers an exceptional opportunity for UK industry. We believe BERR's document has underestimated the job creation potential – nearly ¼ million jobs have already been created in Germany in getting to about half the level our target now demands.

Do: Raise the average *and* encourage the exceptional ***Part of the solution***

While overall energy sustainability will be steadily raised through regulation and obligations, there must be added incentives for those who want to do more.

The grid electricity mix, for example, will be progressively 'greened' by the RO, but users who want to install or buy renewables to raise their contribution to much higher levels must be encouraged.

In transport, the RTFO will bring a renewable content into the fuels we all use, but incentives for high-blends and flex-fuel vehicles will help early adopters go further.

While building regulations improve standards nationwide, further support should go to builders, property owners and local authorities who wish to exceed average national performance levels.

A broad and coherent approach HOLISTIC

The Government wisely acknowledges the need to broaden the policy portfolio and bring a wider range of viable technologies into the mix.

Don't limit the mix of renewable technologies ***Illustrating the issue***

This objective is hindered by the document's sweeping assertions that solar PV has "limited potential to make a significant contribution to the target" and that wave and tidal energy is "unlikely to generate large quantities by 2020".

Photovoltaics seems to be shackled by cost estimates which do not reflect the true user value, nor recognise that, as a solid state semiconductor, it can reduce costs by orders of magnitude as volumes increase. Internationally, PV has been the fastest growing renewable sector at a compound rate of more than 30% for over a decade. The report recently published by BERR shows how high its contribution can be with the right incentives, even in the shorter term.

Marine renewables and micro-wind generation are at an earlier stage, but a proactive approach to deployment in the UK at this pre-commercial phase can create a national competitive advantage. The UK was in a position to do so in the early days of wind energy but failed to take advantage, allowing other countries to usurp our leadership position.

The document considers the potential contribution of each technology. We believe this is of limited value beyond confirming that the targets are practically achievable (which they are). In addition to reservations about some of these estimates we would discourage Government seeking to select which technologies to support.

It should establish a framework under which all prospectively useful renewable sources can come forward. Some may then fail to make a significant contribution in the free market, but this should not be because the strategy has 'selected them out'.

The document also acknowledges the need to broaden the policy portfolio beyond the historical focus on merchant energy generation. This means that demand 'pull' measures will need to be adopted too (as discussed further under 'raise the average *and* encourage the exceptional' above and 'the contribution of energy users and consumers' below) and made consistent with supply 'push' measures such as the RO and the RTFO.

Energy conservation and the energy hierarchy EFFICIENT

The REA adheres to the principle of an energy hierarchy[1], and it is a theme which runs throughout this response. It applies to all energy uses – but is often not vocalised in the context of transport, for example. Energy conservation means taking fewer journeys, energy efficiency means using vehicles that cover greater distances for the same amount of fuel. The UK should strive for both, as this will reduce total UK energy consumption and assist with us reaching the overall 15% renewables target.

[1] http://www.r-e-a.net/policy/rea-policy/REA-policy-development/EnergyHierarchy.pdf

Do: Use all the tools in the box ***Part of the solution***

The targets are sufficiently demanding that it will be necessary to use all effective renewable technologies and applications within the mix. We cannot hope to meet the 2020 and future targets by picking 'silver bullets' (as might be suggested by figure 1.4 in the document).

This broader approach demands tight policy coherence such that measures in one area do not create unintended adverse consequences elsewhere (such as those discussed under 'the contribution of energy users and consumers' below).

We make no apology for the fact that our response includes a large number of constructive proposals.

While our remit focuses on energy production rather than conservation, we agree that energy efficiency is a vital part of meeting the UK's renewable energy target, and is complementary with renewables in many ways.

The contribution of energy users and consumers INCLUSIVE

Environmental awareness has been encouraged and has grown greatly over the last decade. Ultimately, consumer pull has the potential to be the strongest and most enduring signal. Once the 'playing field is level' and the right signals and information are in the market it is customer demand which will sustain the renewables market.

Energy policy should therefore start by optimising demand for conservation and renewables. Yet recent policy decisions not only ignore the consumer demand aspect, but often work in the opposite direction, cutting consumers out completely. Prime examples are the Ofgem green supply proposals and Defra's guidelines on greenhouse gas emissions reporting. Central to this problem appears to be concerns over emissions rights, and this is discussed separately in Annex 4.

Don't ignore or alienate commercial energy users ***Illustrating the issue***

In formulating their environmental policies, several large energy users have laid plans to install renewable energy systems on their sites under the RO. The latest guidelines from Defra state that the energy delivered from such systems cannot be treated as zero carbon for the purpose of environmental reporting – it should be accounted for at the grid average (i.e. as if it were only about 5% renewable).

Similarly Ofgem's green tariff proposals mean that if such users were to contract to buy renewable energy from an energy supplier that too would be classified as 'brown' power.

This approach may be understandable from the viewpoint of Government's accounting of the effects of each policy measure and additionality, but it is incomprehensible from the users' perspective. These companies will ditch their plans and potential new renewable capacity will actually be lost!

Deploying renewables at the level required to meet the 2020 target will mean significant changes that require public acceptance. Nurturing consumer demand is a great way to engage the public and should lead to greater understanding, acceptance and feeling of ownership. Consumers should therefore be encouraged to buy renewable energy via the grid or install a system at their home.

Support policies for renewables exist because the benefits to society are not yet recognised in the market price. The long-run policy goal should be to get renewables to the point that they can compete with fossil fuel alternatives without additional

support and with social costs of waste and emissions fully internalised into the price. That will occur sooner if a market for renewable electricity and heat is encouraged.

Microgeneration is another area where consumer demand is not adequately recognised. The document raises concerns about the costs, but doesn't conside the additional benefits that renewable energy systems bring to individual consumers. The RE-charge scheme proposed by REA is a way of harnessing this consumer demand.

Importance of consistency and investor confidence — CONSISTENT

Some of the proposals in the document are very far-reaching and the targets represent a quantum change from the path we are now on. Free market operation will not deliver this on its own, yet most of the investment required will come from industry and the financial sector.

That will require strong, clear policy signals from Government and consistency to minimise perceived 'political risk'.

The success of any policy, which needs to attract industrial investment, depends on investor confidence in its design and in any changes made to it. Renewable energy is a new industry with therefore a higher perceived level of risk. The more that risk is minimised the lower the cost of developing projects and the higher the level of deployment.

The newest policy mechanism in the sector is the Renewable Transport Fuels Obligation. Before this has had the time to bring new investment into the sector, proposed changes are already raising the perceived political risk.

Don't downgrade the targets — ***Illustrating the issue***

The Renewable Transport Fuels Obligation (RTFO) was introduced just five months ago with a target of 5% by volume in 2010. It is now suggested that this milestone be deferred to 2013/14, on the basis of sustainability concerns. REA respects those concerns but urges government to address them by actively championing the sustainability reporting it has so commendably pioneered.

The Renewable Energy Strategy states that not having a 10% contribution from transport would make achieving the UK's overall target 'very difficult'. Delaying the 2010 target makes the task of meeting the 2020 target all the harder and may require even more stretching targets for heat or electricity generation.

More fundamentally, a change of this scale so early in the life of a long-term policy measure leads investors to doubt what other changes the Government might make. This can stifle investment in new projects – as is now happening in the biofuels sector – and destroy the likelihood that the necessary capacity can be financed.

The most established policy mechanism in place is the Renewables Obligation, and whilst the document suggests the Government believes that the RO remains the best mechanism for bulk electricity, it nevertheless raises the prospect of some worrying developments.

Hanging in the air is a suggestion that the Obligation will introduce a band for every technology, possibly with further sub-bands. Adding such additional complexity would be counter-productive. We elaborate our suggestions for how the RO could be developed in Annex 3.

Do: Keep the RO 'fit for purpose' to 2020 ***Part of the solution***

Resist the urge to further complicate the RO. Don't put each technology in its own band or introduce sub-bands, as suggested on page 97 of the document.

Other relatively far-reaching suggestions are made in the document, which are not accompanied by discussion of how they might work nor the process for developing them further. One such example is whether the buy-out price should be adjusted according to power prices. Such open-ended question marks hanging over the Obligation could adversely affect investor confidence, particularly in a world of rising supply chain costs.

Every effort should be made to simplify the RO. This could be achieved by removing elements which we argue should never have been in the RO in the first place along with adopting a more pragmatic approach to the thermal renewables. These are elaborated in Annex 3.

Investor confidence concerns have influenced several of our responses. This is why we propose the retention of the Renewables Obligation for large-scale generation, for example, and support grandfathering. It is also the reason we have highlighted the need for any biofuels targets to be mandatory.

In addition to stability, simplicity is also important for investment confidence. Investors need to be able to understand what the returns are for what they're investing in. This is why we are concerned about the proposals to band the RO further, and why we propose a more straightforward tariff system for users outside the energy industry.

Section 2: Proposals for each sector

This section explains what actions need to be taken in each sector to meet the target. It loosely follows the sectors implicit in chapters 3 to 8 of the consultation document and then adds other important contributors such as finance and the public sector.

It does not go through every issue discussed but gives our proposals on each sector and focuses on those areas we consider most important or which we believe do not receive enough attention in the document.

In line with our views on urgency we have identified, with an orange bullet, those where you should **just do it** early – before completion of the full RES – for example in the Energy or Planning Bills or where legislation is not needed. For convenience we have also summarised in Annex 1 an extract of all these REA policy proposals.

Centralised electricity generation

Bulk electricity generation is the most advanced sector because it has had a support mechanism in place for a number of years. To retain investor confidence and build on the success of the RO we think it should be retained for merchant electricity generation.

Deployment needs to accelerate, requiring planning and grid barriers to be overcome. It also needs some simplification to ensure it is effective into the future and these are discussed in our response to the 2009 banding statutory consultation, and in Annex 3.

Priority policy recommendations for merchant renewable energy generation are:

- ☆ **Improved access to grid by moving to 'connect and manage' from the present 'invest and connect' approach**
- ☆ **Strategic approach to new transmission infrastructure in areas with anticipated major growth (including offshore and Scotland)**
- ☆ **Exclude issues covered by the new National Policy Statements from the scope of local planning decisions, as these should only address project-specific local issues**

- ☆ **Create an incentive for local authorities to meet their share of their region's UK renewable electricity target through a renewable planning reward grant**
- ☆ **Increase RO quota to 40% by 2020[2] and the headroom to 10%. Extend the RO to at least 2040**
- ☆ **Take ROC inflation[3] into account when setting the Obligation levels otherwise delivery will be lower than intended**
- ☆ **Introduce a production tariff for renewable heat, which is complementary to the RO, and allow more flexibility in the way renewable energy producers meet their customers' needs**
- ☆ **Introduce a tariff payment for bio-methane fed into the gas grid**
- ☆ **Encourage the productive use of waste heat from all new thermal generation**
- ☆ **Encourage biomass co-firing capability within any new CCS (carbon capture and storage) schemes**
- ☆ **Alignment of regulator's remit with national policy objectives**
- ☆ **Within the scope permitted by EU Directives, develop appropriate consenting methodology for large-scale projects (e.g. Severn Tidal Barrage and remaining Scottish and Welsh large hydro potential), which may have local environmental disadvantages but larger global benefits**
- ☆ **Implement a comprehensive energy labelling and robust green tariff system**

There are a number of modifications to the RO proposed in the document. These need to be considered as a whole. In extending the RO's lifetime, the opportunity should be taken to introduce limits to the duration of support, e.g. 20 years for new and existing projects.

Local Planning Authorities receive funding for achieving a rapid turnaround on planning applications (the Planning Reward Grant) and for achieving government housing targets (the Housing Delivery Grant). Applying this approach to renewable energy could help encourage 'buy in' from local planning authorities to the achievement of renewable electricity targets. This could be achieved by rewarding local authorities once they have reached a specified percentage of renewable electricity generation within their areas. The local authority area consumption is available from the NUTS4 data [4] and the output from consented capacity calculated according to a formulas using average load factors. This may assist in encouraging local support for renewables projects. The benefits of the reward grant could be maximised if local planning authorities were encouraged to reinvest that funding in small scale renewable and decentralised energy initiatives in their own

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[2] This target level is commensurate with our suggestion of aspiring to an 18% overall energy target, which would require indicatively 38% of electricity bulk from renewables in addition to the contribution from renewables driven by the RET (see below). If the RET were not introduced in addition to the RO, these quotas would have to be significantly higher.

[3] ROC inflation is inevitable. The only generation earning less than 1ROC/MWh, which is expected in significant volumes, is biomass co-firing. Initially this would have earned 0.25ROC/MWh, but now will earn 0.5 unless used in a qualifying CHP plant in which case it will earn 1.

[4] Regional and local authority electricity consumption statistics http://www.berr.gov.uk/files/file45726.xls

building stock and to support the take up of householder and community renewables.

It has long been assumed that environmental concerns would preclude developing any further large hydro resource. This kind of approach may have been desirable when the dangers of climate change were less apparent and environmental conservation awareness was first becoming established. It may not be now, and a new methodology may be required. For example, it may not be necessary to provide compensatory habitat as suggested by the Sustainable Development Commission in relation to the Severn Barrage. This evaluation must be conducted within the constraints of the EU Habitat Directive etc. The outputs could eventually form part of the Renewables National Policy Statement.

A proper system of energy labelling across all tariffs will allow customers to see the sources of the energy they are buying. If consumers have a preference for renewable power, this could provide useful additional market stimulus.

Further proposals specific to offshore wind and marine renewables are given under "Innovation" below, and to biomass in the "Bioenergy" section.

Renewable heat

Renewable heat represents previously ignored 'low-hanging fruit' and needs urgent policy support. Our priority recommendations for renewable heat production are:

- ☆ **A support mechanism for renewable heat, introduced swiftly**
- ☆ **The biomass element of mixed waste should be eligible for any heat incentive from the outset**
- ☆ **Incentives for the introduction of heat networks, and a requirement that new developments above a certain size must be built with heat networks**
- ☆ **Proper incentives for biomass so that biomass heating/CHP is more widely used**
- ☆ **Introduce mandatory sustainability standards, and accompanying verification processes for the use of biomass for energy, which are consistent across the power, heat and transport sectors.**

Much of our response on heat is made under the distributed energy and built environment section below, as a significant proportion of the additional decentralised renewable production is expected to come from renewable heat.

We have argued that policies appropriate for the merchant energy supply sector are unlikely to be suitable for end users, and that a different approach may be required. The prime example being the Renewables Obligation - a policy designed for and effective in the merchant electricity market, but unsuitable for electricity users (e.g. householders and on-site generation) – hence the need for the Renewable Energy Tariff.

It could be anticipated, therefore, that what might suit the merchant heat market (e.g. large industrial heat networks) would be inappropriate for small-scale heat users. Fortunately the Renewable Heat Incentive as proposed in the document – which deems the output for smaller installations - makes it an appropriate mechanism for stimulating renewable heat uptake among users as well as on the supply side.

It is important to note that capitalising payments up-front is not an essential part of a successful heat incentive. It has significant cash-flow implications, plus there is the risk that the administrative arrangements could share the shortcomings of previous

capital grant schemes. An alternative would be for the market to perform the capitalisation function, for example based on the model described in Annex 5.

Policy should not encourage electrical heating wherever direct renewable heating options exist, as it is unlikely to present the most efficient use of resources.

For the sake of clarity, we note that we would expect renewable heat projects commissioned before any heat mechanism is introduced to benefit from the mechanism once it comes into place. Ideally this should be the case *whenever* the project commissions, but as a bare minimum it should apply to any project commissioned after 26th June 2008. This approach is in keeping with the transitional arrangements put in place with respect to banding the RO – namely that if a project commissions after the government's intention to band the RO was published (i.e. after 11th July) it benefits from the new band levels once they come into place.

Decentralised energy

Government has, for some time, recognised the benefits of decentralised energy and we support this.

From a policy perspective, an important issue is to enable businesses and consumers (i.e. those for whom energy supply is not their primary business) to be encouraged to make their contribution to the energy mix we wish to develop.

Policy development in decentralised energy must recognise that it extends way beyond consumer and microgeneration applications. The recently published report by Element Energy on non-domestic solar PV and small wind shows that PV in particular can make a much larger contribution than the document acknowledges. It suggests these technologies could comprise up to 7% of the target. If economies of scale achieved through a mass market or the positive impact of product development, such as thin-film PV are taken into account, the report suggests that the price could drop within a few years to below £3000/kWp.

These have historically been marginalised in energy policy as they have limited applicability to bulk electricity generation. The same applies to several valuable on-site heat sources, such as solar thermal and heat pumps. The RES must take a more strategic approach to maximising the potential of these technologies.

Do: Introduce a Renewable Energy Tariff (RET) ***Part of the solution***

We propose the early introduction of a RET to operate alongside the RO. It should reach all non-merchant plant and therefore go beyond solely microgeneration (as currently defined).

The RO was designed to incentivise energy suppliers for whom merchant energy sales is the primary business, and has been relatively successful in that sector. It was not designed, and is not well suited, for consumers and other businesses producing energy firstly for their own use, and maybe partly for export.

This RET is similar to the feed-in tariff applied in other countries, but would apply to the full amount of energy produced by the system, not just that part fed into the grid. This therefore also enables renewable heat (which is not generally fed into a network) to benefit alongside electricity, and so **meets the Strategy's requirements both for a 'feed-in tariff' and Renewable Heat Incentive**.

Further details of our RET proposals are given in Annex 2, which also addresses how the RET can best be made complementary to the RO.

There are no agreed definitions of 'distributed' or 'decentralised' energy, and we do not propose to resolve this issue here. The terms cover a number of different areas with individual characteristics. To address this topic we have considered three specific sectors:

- the built environment – new build
- the built environment – existing building stock
- other commercial and industrial applications

Additionally, our priority proposals for the whole decentralised energy sector are:

☆ **The introduction of a Renewable Energy Tariff (RET), as outlined above**

☆ **Specific routemaps to develop leading decentralised energy technologies, including heat pumps, photovoltaics and solar thermal**

☆ **Strategic support for heat networks both in new developments and, where appropriate, retro-fit**

☆ **Adoption of smart technology whenever new meters are fitted, and a timetable for smart metering nationwide**

The built environment – new build

New building is arguably an easier area to address than the existing stock, since it is subject to planning control.

CLG's commitments to raise new build standards to 'zero carbon' for homes by 2016 and non-residential buildings by 2019 are most welcome, as is the introduction of the Code for Sustainable Homes (CSH). These provide drivers for both energy efficiency and renewables, and the opportunity to select the most economic combination.

Don't sterilise sites for 'on-site' renewables ***Illustrating the issue***

The current definition of zero carbon (which requires all energy to be produced 'on-site') is under review[5]. Some are advocating that just buying in renewable electricity from external sources should qualify. Government must resist allowing its zero carbon policy intent to be watered down in this way and must encourage the on-site resource to be maximised.

Incident renewable energy (sunshine, ground heat, wind etc.) on a building plot is a valuable resource which would be squandered if the building is not designed to utilise it. Fitting later would be more expensive and, in many cases, impossible.

Secondly, the availability of additional centralised renewable generation is likely to become limited because of the competing demands of the bulk electricity sector in meeting its targets.

The applicable definitions now need to be developed (with care – see below) and the calculation methodologies updated to make them fit for purpose.

Priority policy recommendations for new buildings are:

☆ **Zero carbon definition to prioritise use of on-site renewables, with a 'safety valve' only where this is not practical or prohibitively expensive**

[5] It has been estimated that the on-site proviso might not be achievable in some 11% of cases (and could therefore work against Government housing targets by suppressing new home delivery) – perhaps more if the SAP methodology were changed. It could also make small developments comparatively less competitive.

- ☆ **If the safety valve is in the form of a 'buy-out' it should:**
  - o **be paid into a dedicated fund used for renewable energy deployment in the locality of the development**
  - o **be calculated from the MWh of energy that the development fails to deliver from on-site renewables for the design lifetime of the development**
  - o **be calculated at a premium based on the MWh price of the most applicable on-site renewable source that would otherwise have been used**
- ☆ **The Standard Assessment Procedure (SAP) and other applicable calculation methodologies should be updated to be fit for purpose in the transition to a zero carbon built environment**

… **plus** the above proposals on Renewable Energy Tariffs and the proposals on fiscal incentives for existing buildings and heat networks below.

The Standard Assessment Procedure (SAP) and other applicable calculation methodologies should be updated to be fit for purpose in the transition to a zero carbon built environment. More frequent updates should be made to reflect evolving technologies as they become available. Existing calculations for low and zero carbon technologies should also be reviewed and improved. The addition of new carbon saving technologies to the SAP should be centrally funded, rather than commercially funded via Appendix Q, as this is proving a financial disincentive to innovation by small companies. Calculations for cooking and electrical appliances must be added to SAP in order to assess zero carbon homes.

Don't create technology 'blind alleys' ***Illustrating the issue***

The transition through levels of the CSH from today's standard (Level 0) to Level 6 should enable industry – both in construction and renewable energy – to gear up towards zero carbon homes. However, as the levels are currently defined, this leads to some perverse outcomes.

Solar thermal, for example, can make an important contribution to zero carbon heat, but cannot provide year-round all the heat a building needs. It would therefore be used widely at levels 3 and 4 but disappear at level 5, where all heating has to be renewable, so another source would have to be chosen.

Ground source heat pumps are popular, widely-used renewable energy products but may not comply with code level 6 due to their electricity usage.

In addition to the general measures for new building detailed above, the following should be used to incentivise residential new build:

- ☆ **Zero carbon and CSH definitions that allow all useful technologies to be deployed at all levels**
- ☆ **Building regulations revision in 2016 to mandate zero carbon homes**
- ☆ **Building regulations revision in 2010 to achieve CSH level 4, and in 2013 level 5**
- ☆ **Exempt from stamp duty new houses built to a CSH level higher than the minimum requirement in building regulations**
- ☆ **Reduce council tax banding by 1 band for every CSH level above the minimum requirement in building regulations**

Do: Encourage heat networks *Part of the solution*

Current practice is to connect all new homes to the electricity and the gas grid. This gives some freedom in the choice of electricity source (including the connection of on-site power), but locks them in to fossil fuel for heating.

New developments should, wherever possible, be provided with heat networks (instead of gas). These allow renewable heating from biomass or heat pumps, for example, or can even use gas at first but with the potential for future change.

It would also enable variable thermal renewables, such as solar thermal, to export surpluses and draw any shortfalls from the network, thereby achieving net zero carbon status in the same way that renewable electricity can.

This is also relevant to non-residential buildings.

Non-residential

The CSH does not apply to non-residential buildings, therefore an equivalent scheme needs to be developed. We recommend:

- ☆ **The development of a Code for Sustainable Buildings, adopting the same principles as the CSH**
- ☆ **Revise building regulations to reflect the zero carbon objective**
- ☆ **No increase in rateable values to apply in relation to the installation of renewables or energy efficiency**
- ☆ **Fiscal incentives such as Enhanced Capital Allowances and business rates relief for all forms of energy efficiency and renewables**

The built environment – existing building stock

We see the lack of measures in this sector as one of the key weaknesses in the existing document.

Don't ignore existing buildings in the focus on new build *Illustrating the issue*

New construction will produce, at most, 2 million homes by 2020 and the changes proposed above will improve these greatly.

This number is dwarfed, though, by the further 26 million existing homes. These must also contribute to a sustainable energy future – indeed it will be difficult, if not impossible, to meet the energy efficiency or renewables targets without improving the (often lamentable) standards of these buildings.

Priority policy recommendations for existing buildings:

- ☆ **Renewable Energy Tariffs (as described above) to support decentralised energy more widely, strongly and consistently than has been achieved by the Low Carbon Buildings Programme**
- ☆ **Fiscal incentives such as stamp duty, VAT and council tax relief for homes with energy efficiency and renewables - e.g. those for new homes above and the following for homes built before 2010:**
  - o **Stamp duty exemption if the home is upgraded to CSH level 5 or above**
  - o **Council tax banding reduced by 1 band for every CSH level above level 3**

- ☆ **Use building regulations similar to those to be applied to new buildings to improve existing buildings when they are extended or altered**
- ☆ **Improve operation and cost-effectiveness of the Microgeneration Certification Scheme (MCS) by appointing an appropriate scheme administrator; promote it more widely and provide financial support during its first years of operation**

Again, in addition to the above general issues, there are further specifics for residential (both owner-occupiers and social/rented) and non-residential buildings.

Private sector residential buildings

Do: Aim for an Energy-generating democracy **Part of the solution**

Government should make the achievement of an energy-generating democracy a key objective just as a property-owning democracy was a Government objective in the eighties.

In an energy-generating democracy an increasing proportion of householders will produce their own heat and power from renewable sources on-site.

In addition to the measures above, the following would help achieve this aim:

- ☆ **A national scheme to address the capital cost of retrofitting renewables, for example paid for through a 'second charge' on the property (our proposals on this are described further in Annex 5)**
- ☆ **An accredited and fully funded sustainable energy advice service for householders with an advisory board, including industry representatives**

Social and rented housing and fuel poverty

The Decent Homes Programme established a methodology for upgrading council and housing association properties. A similar programme should now be introduced to incorporate sustainable energy and can be integrated with heating or roof replacement programmes.

- ☆ **An initial 10-year programme with yearly targets to retrofit energy efficiency and renewables into council and housing association properties**
- ☆ **An accredited and fully funded sustainable energy advice service for local authorities and housing associations with an advisory board including industry**

Government can and should tailor all the above programmes, both for private and for social housing, to address fuel poverty objectives at the same time.

The first of these is one of the few measures we propose which would actually require substantial additional funding from the Exchequer, however, the box below suggests how some of this cost could be offset.

Do: Improve the public and rented building stock ***Part of the solution***

A pro-active programme to upgrade existing council and housing association properties could in due course be part-funded by payments from developments that were obliged to buy-out from the on-site energy requirement (see new build above).

Payments into a designated fund similar to the Community Infrastructure Levy could be applied to building upgrades in the local community, and also prospectively to the installation of community heat networks.

Non-residential

Upgrades to non-residential buildings will need to be incentivised by creating increased demand for those properties in the commercial property market.

Some measures which would help achieve this are:

- ☆ **Fiscal incentives such as enhanced capital allowances and business rates relief for all forms of energy efficiency and renewables**
- ☆ **No increase in rateable values to apply in relation to the installation of renewables or energy efficiency**
- ☆ **A requirement for Energy Performance Certificates to be made available for all non-residential buildings whenever they are sold or rented**

Commercial and industrial applications

Non-energy companies can contribute substantially to the UK's renewables targets through installing their own renewable capacity, leasing sites to other companies to install renewables, paying a premium for green tariffs (provided the double counting issue is resolved sufficiently) and various options in between.

At the moment, government policy is focused on large-scale generation and to a lesser extent microgeneration, ignoring the contribution commercial decentralised renewables can make. The recently published Element Energy Report identifies the large potential contribution of this sector. Non-energy companies installing on-site renewables are a potentially significant contributor to the renewable energy targets and can provide additional sites that wouldn't otherwise be available and where planning permission may be easier. For some non-energy companies, an on-site facility may be relatively large, and care must be taken to ensure that our proposed tariff arrangements complement and do not undermine the RO. This is elaborated in Annex 2, specifically under the heading "Threshold issues".

The Carbon Reduction Commitment (CRC) would be a perfect opportunity to engage this sector in renewables alongside energy efficiency, yet the current proposals are unlikely to achieve this.

If a company claims ROCs for the electricity generated, that electricity will be treated under the CRC as if it had the average grid emissions. This would mean that a company replacing gas-fired generation with renewable generation and claiming the ROCs, would see its emissions **increase** under the CRC, so would move down the league table. Companies are unlikely to forgo ROCs to improve their CRC ratings as ROCs are essential for the financial viability of many schemes. As a result, the CRC will not encourage renewables deployment in the way that it could. Double-counting of emissions between the RO and CRC is a housekeeping issue that can be dealt with and should not be allowed to dictate the overall shape of the policy.

Environmental reporting could be an additional driver, yet Defra's greenhouse gas emissions reporting guidelines were updated recently to match the CRC. Representing on-site renewables as having emissions when they do not will be confusing to the public and remove a powerful incentive for companies to install renewable capacity. The issue is addressed further in Annex 4.

Priority policy recommendations for commercial applications outside the merchant energy sector are:

- ☆ **Design the Renewable Energy Tariff (RET) so systems installed by industrial users for their own use (not for the primary purpose of selling the output) are eligible**

- ☆ **Allocate zero emissions to renewables under the CRC irrespective of whether ROCs are claimed**
- ☆ **Allow on-site renewables to be reported as having zero emissions under Defra's reporting guidelines**
- ☆ **Incentivise applications in non-residential buildings, as described above**

Other decentralised applications

There are other sectors, too, where decentralised renewables offer potential and should be supported, including some of those referred to in the bioenergy section below.

Do: Reutilise existing hydro assets ***Part of the solution***

Some tens of thousands of former mill sites are now no longer in use, but many retain the channels and topography that would enable potential energy to be extracted from the water flow.

A large proportion of these could be fitted with hydro turbines and provide enough power for the surrounding communities. A handful of owners have done this conversion, but the consenting burden is heavy and the economics marginal. Introduction of the RET and a more streamlined consenting system could enable an estimated 8TWh per annum of additional output to be contributed to the mix.

- ☆ **Create a tariff band in the RET for small-scale hydropower**
- ☆ **Streamline the process for abstraction and impounding licences for hydro-generators**

Transport

The REA's response in the transport sector should be read in conjunction with our response to the Gallagher Review of the indirect effects of biofuels production. The Review made a number of recommendations that have already been accepted by the Government. These will have (and are already having) a profound effect on the UK biofuels industry.

As elsewhere, the energy hierarchy should be the starting point. We should reduce demand for energy (demand management, better public transport) and be more efficient with the energy we do use (changes in driver behaviour, improved vehicle efficiency). We should also support renewable fuels.

Transport represents around a quarter of the UK's carbon emissions and energy use. Within that, road transport represents 70% of the energy used in transport and around 93% of emissions from transport in the UK. These comments will therefore focus on road transport and specific policies which the Government has introduced or should consider. Renewable fuels are particularly important in the transport sector, which is 99% dependent on oil. Our primary focus is on biofuels which, as the document notes, are "the only renewable transport fuel option commercially available on a significant scale".

Targets and the Renewable Transport Fuels Obligation (RTFO)

Our priority policy recommendations for the transport sector are as follows, and these are discussed further below.

- ☆ **Any biofuels targets must be binding, challenging and long-term - at UK and EU levels**
- ☆ **Establish a linear trajectory from 2010 to achieve the 2020 target. This should be done taking into account the development of an indirect land use change methodology**
- ☆ **Any requirement for part of the target to be allocated to new solutions that do not compete with food production, should be introduced no earlier than 2020, and limited to one-fifth of this target.**
- ☆ **Back and publicly champion the UK's world-leading sustainability standards and the strong environmental performance of UK biofuel producers rather than back away from targets**
- ☆ **Establish mandatory carbon and sustainability standards for transport biofuels as soon as possible**
- ☆ **Extend mandatory sustainability standards to all energy uses of biomass. This is discussed further in 'Bioenergy' below**
- ☆ **Policy must ensure an effective market for today's technology – a prerequisite for industry investment in future solutions such as 'second generation' biofuels and alternative vehicles**
- ☆ **Be realistic about the contribution that alternatives to biofuels can make by 2020**
- ☆ **Introduce specific incentives for higher blends of biofuels, using the Alternative Fuels Framework**
- ☆ **Do not neglect the potential contribution from biomethane and ensure that it is supported alongside liquid biofuels**

The Gallagher Review and the need for certainty

Investors need targets that are clear, consistent and long-term. The most damaging recommendation from the Gallagher Review is the suggestion that the targets under the UK RTFO should be slowed down to a 0.5% increase per year to reach 5% by volume in 2013/14, rather than in 2010/11. This recommendation, and the Government's decision to accept it, means that investors will see legally-binding targets changed at less than 9 months' notice – increasing the political risk, and therefore the cost of developing projects. Uncertainty about current rules will remain until a revised RTFO Order is agreed by Parliament – only weeks before any changes come into force. The Review also introduces additional milestones which give further investment uncertainty:

- Review in 2011/12 on the progress on sustainability within the RTFO
- Review of targets in 2013/14
- A further Review is being considered for 2015 in the context of the Renewable Energy Directive

It is implicit that, at any stage during these proposed review processes, the targets could be radically changed. This does not provide an environment in which investors will be ready to invest in the UK.

Don't undermine investment by watering down targets ***Illustrating the issue***

The slowdown in UK targets has sent a negative signal to investors undermining the flow of capital into alternatives to fossil fuels in the transport sector.

Gallagher argued that a moratorium would choke off investment in the industry, yet by introducing uncertainties around the biofuels targets the Review has done much the same thing.

The REA believes the Government should act to re-establish industry confidence by:

- contributing to the development of an indirect land use change (ILUC) methodology which clearly distinguishes between good and bad biofuels. This should be done at the European level in a timescale that enables the methodology to be in place by 1 January 2012
- revising the RTFO targets upwards if the methodology suggests this would be justified
- establishing a linear trajectory in UK targets to reach 10% (by energy) by 2020
- engaging in a positive programme to champion its sustainability standards and the achievement of UK biofuels producers against these standards

Biofuels and sustainability

The REA recognises that climate change has been a major driver for biofuels and that they must clearly demonstrate environmental and social benefit.

Do: Champion the UK's sustainability standards ***Part of the solution***

Sustainability is vital. The UK has achieved a leadership position in developing carbon and sustainability standards and should now promote these both at home and overseas as the solution to the negative issues that have been raised. This is a rare example in renewables of the UK taking a lead – and one that is recognised internationally – but the Government has done far too little to promote this achievement since the RTFO order was passed.

The UK biofuel industry too has been at the forefront of developing reporting under the RTFO, with a view to setting appropriate mandatory standards as soon as practicable.

The Renewable Fuels Agency has now started publishing reports on the carbon and sustainability standards achieved within the UK. The first reports demonstrate the strong environmental performance of UK-produced biofuels and it is important that the Government does not allow the present integrity and future potential of the domestic industry to be tarnished by the worst examples of poor practice overseas. It is significant that, after two months of reports under the RTFO, almost all the biofuels produced in the UK meet environmental standards compared to 24% overall.

It is unfortunate that trade rules have allowed the UK industry to be undercut by international imports that fall short of the environmental standards UK consumers are entitled to expect. The REA is now engaged in drawing up an industry Code of Practice to help distinguish good biofuels from bad biofuels and hopes that this may become a catalyst for a wider acceptance of the need for increased consumer information about the provenance of biofuels.

UK consumers can be very effective in changing behaviour, and their impact can be felt much sooner than negotiations on international agreements. NGOs are highly active in this area and could play a vital role in signposting consumers towards

the best-performing suppliers and products. If we fail to back our own standards now, the clear message would be that sustainability is too tricky. That would discourage businesses and governments trying to do the right thing. It would also derail industry investment and innovation in advanced fuels. While it is vital to pursue vehicle efficiency and behavioural change, it is also essential to develop alternatives to fossil fuels.

A combination of strong targets and robust mandatory sustainability requirements will ensure market confidence and drive investment towards increasing technology performance for carbon and sustainability. We urge the Government to ensure that mandatory carbon and sustainability standards are introduced as soon as possible to ensure transparency about the sustainability of all biofuels sold by fuel suppliers.

The REA advocates the expansion of sustainability standards to biomass to ensure that the use of biomass in the power and heat sectors does not have negative environmental impacts. This is addressed further under 'Bioenergy' below.

Our experience of biofuel sustainability also underlines the wider need for sustainability frameworks to apply to land use in general where, for example, textiles, wood and particular food markets can have a far more serious land-use related environmental impact than biofuels. However, we accept that biofuel claims to address climate change places an additional performance onus on this industry.

Transport in the Renewable Energy Directive

Targets within the Directive must be binding to ensure industry confidence. The REA does not support suggestions that there should be interim targets within the Directive. A linear trajectory should enable investment decisions to be taken with a clear policy ahead. The REA supports the transposition of the UK's carbon and sustainability standards within the RTFO to the Directive.

It is being proposed that part of the target for 2020 should be allocated to renewable transport solutions that do not compete with food production. Given that these solutions are still in the early stages, and that this issue will not be significant at low biofuels penetrations, any such allocation should be confined to the final 2020 target of 10% and should be no more than one fifth of that target.

In any event, proposals for additional incentives for 'advanced technologies' will not bring in the private sector investment necessary to develop these technologies unless there is a confident and functioning market for existing products now.

Given the long lead time for new plant we will not, if a decision is delayed until 2014, be able to move from the lower targets proposed by Gallagher to 10% by 2020 using UK or EU production. The document rightly states that not having a 10% contribution from transport would make achieving the UK's overall target 'very difficult'.

Hydrogen and electric vehicles

We would not advocate placing too heavy a reliance on other emerging renewable transport solutions for the 2020 targets, as it is not clear that these will be available in the volumes required. Cars powered by hydrogen or electricity could have a role to play in the future (as the strategy notes) so long as the electricity and hydrogen which power them is derived from renewable sources and the full environmental and GHG impact of manufacturing the vehicles and their components is taken into account.

Don't rely too heavily on unproven technologies ***Illustrating the issue***

It would be risky to assume now that emerging technologies can make a large contribution to low-carbon transport in the UK by 2020.

The 10% target should be largely achieved by the use of the proven renewable transport technology of conventional biofuels, with electricity and hydrogen playing a part to reach more stretching targets for the future.

The future shape of the RTFO

A primary aim of biofuels is to reduce GHG emissions, so it is logical that the RTFO target should be based on GHG savings as soon as practicable. The present system of a volume-based target should be retained until this can be implemented.

It may be appropriate to extend the RTFO to other modes and hydrogen-fuelled cars provided that the same carbon and sustainability standards apply. The GHG emissions required to produce the fuel would have to be fully taken into account.

High-blend biofuels

The RTFO will slowly improve the amount of renewable fuel used for transport by introducing low blends of biofuels into the whole market. Additionally, to contribute to the targets and help stimulate the market, we need to incentivise selective use of higher blends and the vehicles that can use them.

Do: Encourage high-blend biofuels ***Part of the solution***

In addition to increasing the sustainability of the overall transport fuel supply through the RTFO, a new market can be created for high-blend biofuels such as E85 bioethanol and B30 biodiesel, provided they meet mandatory carbon and sustainability standards.

Use of these fuels will assist in meeting the targets and enable early adopters to increase their renewable fuel usage ahead of the general transport fleet.

Fuel suppliers should be encouraged to stock these fuels in more outlets. There should also be Government support to encourage the use of these fuels, such as fuel duty rebates and incentives for flex-fuel vehicles that can run on both gasoline and bioethanol.

Biomethane

Government should explore with more urgency the contribution that biomethane can play in the transport sector. Produced from waste organic materials, biomethane can be extracted from the process of anaerobic digestion, together with high-quality fertiliser (used to grow more food) and the recovery of at least 50% of the water from the discarded parts of the food fed to the digester. Less than half of all the food grown in the world is actually eaten which means that more than half is available as an organic resource (e.g. leaves, stalks, skins, roots and peelings).

Capturing methane gas, and preventing it from escaping into the atmosphere to become a greenhouse gas over twenty times worse than carbon dioxide, improves the environment by reducing dangerous greenhouse gas emissions. Biomethane is clean burning (the lowest CO2 of any hydrocarbon fuel for the same energy), has low emissions (NOx and PM10 or PM5 particulates), and with an octane rating of 135 is both more powerful and more economical than fossil fuel petrol or diesel.

Bioenergy

As a basic principle, the UK should aim to exploit its biomass resources to the full. We will also need to import biomass, and to ensure that it is from sustainable sources, whatever its end use. We also need to increase the amount of home-grown resource. Currently much biomass ends up in landfill, our planting of biomass is insufficient, biomass wastes are not fully utilized and too much of our woodland and forest is not managed effectively. All this needs to change. Both co-firing and dedicated plant have a role to play in the process.

Broadly speaking there are two sources of biomass for energy:

- the biomass content of various waste streams
- newly grown crops, trees and forestry and agricultural residues

We have addressed these separately and added a section on anaerobic digestion as this is perceived to be another high potential growth area.

Bioenergy from waste

Priority policy recommendations for the waste-to-energy sector:

☆ **Revise the waste hierarchy as it impinges on biomass, and revise national indicators accordingly**

☆ **Implement the Waste Incineration Directive such that if focuses on outputs (i.e. air emissions) rather than inputs (i.e. fuel source)**

☆ **Make the RO a more effective mechanism for encouraging energy from waste**

☆ **Ensure the biomass content of mixed waste is eligible for the renewable heat incentive from the outset**

☆ **Resist pressure to address indirect economic impact on other sectors, e.g. oleo-chemicals or chipboard manufacture, by limiting the use of certain biomass fuels for renewable energy**

The waste hierarchy is not relevant to the biomass within waste streams. It was written with other materials in mind, e.g. aluminium, glass, plastic etc, where recycling has more relevance and is usually a better environmental option than disposal or energy recovery. The reverse tends to be true for biomass.

Energy from waste should be catered for better with respect to the Renewables Obligation. Please see our comments and proposals in Annex 3.

Do: Support holistic approaches to waste and energy ***Part of the solution***

Farms can install AD plants to re-process their own slurry and waste. The approach can be extended, for example, where the farm supplies to a supermarket chain, as they could return their bio-waste to the farm for digestion (improving transport efficiency also).

The biogas produced could be used for powering farm vehicles, fed back into the gas grid or used in an on-farm CHP unit providing heat for a dairy, for example. Any excess electrical power could even be sold back to the supermarket for their own use, or for resale as green energy to their customers.

Anaerobic digestion

Anaerobic digestion (AD) is a technology for converting biomass into biomethane, which can be used for a wide variety of energy uses, and bio-fertiliser. It is widely

adopted in other countries but relatively underexploited in the UK. It has a degree of prominence in this response not because the Association favours the technology over others, but because it is an emerging technology (in the UK) and Government has only recently started developing policy in this area.

The use of biogas for transport is an important prospective contributor to reducing GHG emissions in the transport sector, and this is discussed in 'Transport' above.

Our priority proposals for the biogas sector are:

- ☆ **Create tariff bands in the RET for biomethane fed into the grid**
- ☆ **Any specific support for farm based AD should be separate from the RO or RET, and administered by Defra**
- ☆ **Simplify and standardise environmental permitting for AD plant**
- ☆ **Support the development of industry certification for AD**
- ☆ **Priority access for biomethane into the grid**

Germany, for example, has provisions for feeding biomethane into the grid mirroring those for the priority access of renewable electricity to the grid, which the UK could follow.

At the moment there is no incentive for a farmer to treat farm slurries by AD. A slurry pit will suffice, even though it emits methane, a much more potent greenhouse gas than carbon dioxide. Appropriate financial incentives for farm-based AD and for multi-farm and community projects would make it economic and turn a negative contribution into a positive one.

The current classification of digested manures and slurries as waste creates a disincentive for small farm biogas plants and should be reversed. These smaller plants may choose not to go through PAS 110 certification if they are using digestate on their own farmland. The REA Biogas group is working with the Environment Agency on Environmental Permitting, and standardised permits for certain categories and sizes of plant have been proposed. Administrative efficiency might be improved by centralising expertise within EA, thus reducing the need for training locally.

When local authorities conclude Local Area Agreements (LAAs) with Government on re-cycling targets, AD of source-separated food waste should score higher than in-vessel or windrow composting.

The AD industry is expanding quickly. A certification scheme and Code of Practice would give clear guidance to operators and build confidence with the public.

Agriculture, forestry and biomass

Priority policy recommendations:

- ☆ **Ensure that the implementation of the Waste Framework Directive and WID does not impinge negatively on biomass residues on account of their provenance**
- ☆ **Continue to encourage the use of energy crops through the RO**
- ☆ **Review air quality standards to ensure they are appropriate for biomass**
- ☆ **Extend sustainability protection measures to all uses of biomass**

Government should also align the definition of energy crops with the policy intent – if perennials save more carbon than non-perennials, classify them accordingly.

Biomass and sustainability

Sustainability applies to all uses of land – food, bioenergy, textiles, building materials and chemicals. Carbon and sustainability criteria in the RED will apply to transport biofuels and bioliquids for energy use from transposition (April 2010). These are likely to be extended to other energy sectors in the medium term. Implementation of these standards will need to ensure economic operators have sufficient time to prepare for their introduction.

We need to focus on using the land available in the most efficient and sustainable way. Agricultural yields in the developing world are only half those in the developed world, and there is very significant variation even within the EU.

Innovation and emerging technologies

The RES needs to take a strategic view especially on new approaches which have yet to reach the commercial market.

These areas require:

- ☆ **A strategic approach to areas of particular future potential for the UK**
- ☆ **Policies to overcome the 'valley of death' between R&D and commercialisation – an example being the need to support companies to gain access to the MRDF**
- ☆ **Financial support measures that minimise risk for emerging technologies**

The document questions the RO's ability to bring forward emerging technologies. This has been the subject of considerable debate within the REA and especially the Ocean Energy Group. We support the RO as the prime mechanism for supporting centralised bulk energy production.

Technologies like wave and tidal stream energy would fall into this definition, yet are at the stage when it is difficult to rely on revenue support alone. The expected load factor and availability cannot be relied upon to support a business case, and some degree of capital support is particularly helpful. A capital grant, coupled with enhanced revenue support for the early years when teething problems are likely to be encountered, is an ideal combination. This is precisely what the MRDF aimed to provide, and suggestions to enable it to play an effective role are discussed under Marine Renewables below and in Annex 6.

In addition to the sector-specific approaches described above, there are some additional areas, where the UK has a potential competitive advantage and where specific strategies should be evolved for innovation and the transition to market. We focus on four such areas below, but this is not an exhaustive list.

Marine Renewables

The UK has 50% of Europe's wave energy resources and 35% of its tidal resource. To date we are the acknowledged world leader for marine renewables and we do not wish to lose this position as the technology moves into the commercialisation phase by other countries overtaking the UK as more attractive markets. Exactly this occurred in relation to wind energy in the 1980's.

Priority policy recommendations for this area:

- ☆ **Reintroduction of R&D grants for marine energy devices from the Technology Strategy Board (TSB)**
- ☆ **Assistance for companies to meet the entry requirements for the Marine Renewables Deployment Fund (MRDF)**

- ☆ **The maximum awards available under the MRDF need to be larger, and the overall size of fund increased**
- ☆ **The cost of environmental monitoring should be capped at a realistic and proportional level, within a defined maximum percentage of the project cost**
- ☆ **Government should share the risk of decommissioning and take on the post-decommissioning perpetual liabilities**
- ☆ **Marine renewable energy developments greater than 10MW should be licensed through the Infrastructure Planning Commission**
- ☆ **The new MMO should be a UK-wide body whose remit explicitly recognises the contribution of renewable generation to climate change mitigation.**
- ☆ **Develop a national strategic plan for marine renewable technologies**

Further proposals on the contents of such a strategic plan are given in Annex 6.

Offshore wind

It is likely that the UK will shortly take the lead in the deployment of offshore wind. We also have extensive offshore expertise from our oil and gas sector, yet we remain reliant on overseas technology.

This is clearly a sector where a constructive combination of development and commercial deployment could be used to obtain a global leadership position.

Our proposals:

- ☆ **Develop a national strategic plan for offshore wind technology, covering offshore transmission infrastructure and consideration of the Offshore Super-grid proposal**
- ☆ **Review the installation resources available for offshore wind (and in due course, marine renewables) and establish a national collaborative platform to ensure that ships and equipment can be available when needed**

Products for the decentralised energy market

The UK is in the forefront of the development of some building-integrated and on-site renewables, such as PV roof tiles and micro-wind devices, despite our poor domestic market. The REA believes that accelerated deployment, particularly in the built environment, can be achieved by further development so that renewable energy systems can be installed by builders just like any other building product.

This would be aided by:

- ☆ **Targeted D&D (development and demonstration) support for products that are closer to market than normally catered for by existing R&D grants**
- ☆ **Identifying high potential areas such as building-integrated PV and micro-wind and ensuring that:**
  - o **they are included in funding from the TSB and where appropriate research councils, ETI and Carbon Trust**
  - o **they benefit from market incentive measures such as the RET**
- ☆ **Specific assessment of products and technologies with potential in the non-residential decentralised energy sector, and strategic plans for early deployment**

Smart metering and energy management

Innovation policies need to include systems technologies beyond the generator itself. In particular there is substantial scope for actions to support active network and load management technology:

- ☆ **Adoption of smart technology whenever new meters are fitted; and a timetable for smart metering nationwide**
- ☆ **Investment in know-how and funding to deploy intelligent networks to permit timely and economic delivery of renewable power**
- ☆ **Review of potential approaches for load management control to be applied at the level of consumer units or individual appliances**
- ☆ **Review the potential for electric vehicle battery charging as a balancing facility**

Flexible demand can be used in conjunction with variable energy resources to balance demand with available output and to manage certain transmission and distribution network constraints, as an alternative to installing more hardware. This strategy avoids constructing power stations that are only needed for a short time every year to meet peak demands and can result in significant carbon savings.

The use of demand flexibility does not have to be centrally managed. It could evolve through the autonomous actions of individuals (or appliances) if they could respond to short term price and availability signals. This could be achieved through smart metering or in the case of appliances, response to voltage fluctuations.

These approaches also offer benefits in export potential for the UK.

The public sector

Government has a definitive role in this strategy, not solely in developing the policies to support the above sectors but in providing leadership and raising awareness.

The public sector also has the country's largest property portfolio.

Central Government should:

- ☆ **Place responsibility for the achievement of sustainable energy targets within a single department under the control of a cabinet minister**
- ☆ **Establish under this minister an Energy 2020 Taskforce to include (inter alia) representatives from all relevant Government departments, the industry and stakeholders from the above and the financial sectors**
- ☆ **Align the regulator's remit with national policy objectives**
- ☆ **Establish a strong cross-departmental resource to advise on sustainable energy measures, to audit and enforce standards and to publicise best-practice approaches**
- ☆ **Develop concerted and long-term programmes of awareness-raising in all sectors**

Central and local Government should:

- ☆ **Lead by example in the adoption of energy efficiency and renewable energy in property portfolio and vehicle fleets**
- ☆ **Be at the innovation edge for raising standards, e.g. when Building Regulations require CSH level 4, Government procurement should specify CSH level 5**

- ☆ **Consider renewable installations for all capital replacement programmes using a whole-life costing approach.**
- ☆ **Maximise use of sustainable biofuels in vehicle fleets and encourage the use of flex-fuel, biogas and hybrid vehicles**
- ☆ **Implement an annual carbon budget process that mirrors annual financial budget processes**
- ☆ **Develop a strategy and milestones to bring their entire operations to zero carbon by 2050**

The financial sector and related services

While it is the responsibility of Government to clearly signal the required outcomes, most of the practical infrastructure will be developed and installed by industry and most of the investment will come from the financial sector.

This sector, with related services such as insurance and legal, needs to be actively engaged as the strategy evolves to maximise the likelihood that the required investment will come forward.

This leads to some additional priorities:

- ☆ **Policies, support mechanisms and fiscal measures need to be clear, long-term and consistent, so financiers can take a view on investment returns without having to factor in high levels of political risk**
- ☆ **Financing support for community ESCos (energy service companies) to develop and be able to sell to commercial entities without it affecting their funding**
- ☆ **Office of Government Commerce could be a vehicle for providing security, loans and support for public sector organisations - such as schools - to become local energy providers**
- ☆ **Air quality, decommissioning and other consenting issues need to resolved to avoid the potential for future class actions against insurers of plant**

Section 3: Answers to the questions

This section addresses the specific questions posed in the document.

Chapter 1

Q1: How might we design policies to meet the 2020 renewable energy target that give enough certainty to business but allow flexibility to change the level of ambition for a sector or the level of financial incentive as new information emerges?

a) Focus on the outcomes you require and ways of delivering the active involvement of all relevant sectors (supply and demand-side).

b) Avoid perverse policy interactions and don't worry about double-counting of emissions savings when developing support mechanisms – do the accounting afterwards. (see annex 4)

c) The heat sector requires the most rapid development. Flexibility is best achieved by a policy mechanism based on a tariff rather than an obligation.

d) A mandatory target for transport biofuels is essential to give certainty to business.

e) Policies would be more focussed and effective if framed in relation to the industry sectors in which they will operate (as we have done in section 2 above), rather than by technology (as you have done in the document).

f) Read and act on our priority proposals above.

Figure 1.4 of the document is not supported by evidence and is especially unhelpful in failing to recognise that broad ranges apply to the costs of most technologies. It also implies that the available approaches could be addressed one after the other, while we need simultaneous action on all available technologies.

Q2: To what extent should we be open to the idea of meeting some of our renewable energy target through deployment in other countries?

As far as the renewable electricity resources within the EU are concerned, the potential for trading, if any exists, must not allow the Government's focus to shift from achieving domestic delivery.

The targets will be demanding for all Member States and therefore trading seems unlikely to offer significant potential. Furthermore, in view of our relatively underdeveloped market and our exceptional renewable resources, the UK should be considered (if anything) a potential exporter, rather than importer.

We would not rule out physical trading of renewable electricity if it is more cost-effective at the margin, and indeed (as indicated above) might wish to use this capability for surplus production. Concentrated solar power from the Northern Sahara regions and marine renewables from the Channel Islands (neither of which are in the EU) exported via interconnectors could provide added opportunities.

The Consultation also suggests that the UK might seek the flexibility to use investments in renewable energy in third countries as a way of meeting the target. Again, such a move would risk deflecting effort within the UK to produce our own renewable energy. Given the UK's excessively cautious approach to the development of biofuels, a scenario could be imagined whereby the UK pushes for the10% target for renewable transport to be reduced – and that it should be allowed to make good

the shortfall through UK investments overseas, rather than through domestically-produced renewable energy. With the UK's considerable renewable resources, such a scenario would be totally unacceptable and an abrogation of the UK's responsibilities within the Directive.

Chapter 2 – Saving Energy

Q3: In the light of the EU renewable energy target, where should we focus further action on energy efficiency and what, if any, additional policies or measures would deliver the most cost-effective savings?

Energy efficiency is of prime importance and along with energy conservation, is right at the top of the energy hierarchy, meaning action should preferentially take place on these options over options lower down. This applies to all sectors, although is often overlooked when it comes to transport.

We leave it to organisations better-placed to contribute views and suggestions.

Chapter 3 – Centralised electricity

Q4: Are our assessments of the potential of different renewable electricity technologies correct?

The overall potential of renewable generation technologies substantially exceeds your assessment. The potential of renewables is mainly a matter of competitiveness (depending on how level the playing field is) and the political will to bring barriers down. Resource availability is rarely a limiting factor. Far more could be achieved if necessary, and will be required in the longer run.

An excessive focus on assessing potential technology-by-technology is unnecessary. The way in which you have done so has led to distortions, for example underestimating the likely contribution of high grade contributors like PV.

The time has now come to move beyond assessing the potential and focus on maximising deployment. The policy framework must encourage all practical resources to offer their contribution and their success in the market will then define what each delivers to the total.

Q5: What more could the Government or other parties do to enable the planning system to facilitate renewable deployment?

- Make sure the National Policy Statement (NPS) on renewables covers all scales of development, not just those likely to present at 50MW and above.
- Have robust processes to ensure that local authorities follow the NPS and exclude matters covered by the NPS from local planning enquiries.
- Repowering of wind farms should be subject to minimal planning requirements. We welcome the proposal on page 65 that this could be achieved through Local Development Orders
- All offshore projects over 10MW should go through the IPC.
- Completion of the Strategic Environmental Assessment in time for Round 3 of offshore wind licensing.
- We welcome actions in paragraph 3.3.12.

- The cost of appeals should automatically be levied on Local Authorities, not just when the developer requests it.

We welcome attempts to apply more robust incentives on local authorities to deliver more approvals, although the ideas need a great deal more development. We cannot at the moment see how a housing quota type approach could be applied, but one possibility is that local authorities could receive an incentive grant for approvals if they achieve more than 10% of their areas' electricity consumption from renewables. This reward could be tiered, with higher incentives for higher contributions.

We are sceptical of the value of detailed resource assessments, and are not in favour of breaking assessments down by technology or by geographical area, for reasons we would be pleased to elaborate on.

The whole focus of planning should be that local authorities should have to justify "no" decisions to central Government, not just to the local NIMBYs. The Planning Bill aims to de-politicise planning decisions, and focuses on larger plant, where decisions are currently taken by the Secretary of State. With respect to the vast majority of renewables projects, it is *local* rather than *national* politics which tends to be the problem.

Q6: What more could the Government or other parties do to ensure community support for new renewable generation?

It is clear from table 3.6 that in all the other countries the local communities receive a direct benefit from the taxes collected from local facilities. The UK is unusual amongst major industrial nations in not allowing local communities to keep some of the benefit of local taxes paid by local businesses for domestic local tax payers. As well as allowing a direct financial benefit to domestic local tax payers (from having any industrial facility sited within their community making it somewhat easier to get local support) there is also an argument that this is fairer than the current arrangements.

The document sets out the work already done in this area as recommended by the Renewables Advisory Board. This work may need to be better publicised, but we believe the work itself is sound.

With respect to the potential further measures touched upon (para. 3.4.7); - We are sceptical that a *single benchmark for local community benefits* is desirable. Each project and receiving community is unique and a single financial payment would be difficult to justify. The varying factors are numerous including population density, the distance from the development, the fact that distance does not always correlate to the degree of impact etc. It is worth noting that in some areas (particularly Scotland) the offer of funds exceeds the resource available in the local community to spend it effectively.

It is certainly correct that the renewables sector is likely to have particular needs and therefore these should be considered in the design of the Community Infrastructure Levy. The clarification that the CIL will bring to the issue of when and how community benefits should be addressed within the planning process will be very welcome.

Mechanisms that enable communities to benefit financially from business rates etc are certainly desirable.

There is also a significant amount of work to be done educating the general public about the benefits of renewable energy, particularly on the merits of biomass and

waste to energy as safe, proven technologies that have a major beneficial effect on reducing greenhouse gas emissions. There is a widespread public perception that biomass combustion is only slightly better than coal combustion. There needs to be a greater understanding of why biomass combustion is neutral in terms of CO_2 emissions, its merits as a dispatchable renewable and that it avoids emissions from alternative disposal routes.

Q7: What more could the Government or other parties do to reduce the constraints on renewable wind power development arising from: marine navigation; environmental legislation; aviation and radar; any other aspects of regulation?

- Marine navigation: Despite government initiatives such as the Nautical and Offshore Renewable Energy Liaison Group (NOREL), it is clear from recent publications that the shipping and navigation community at large does not fully understand the concept and operation of marine renewables. We need an information campaign
- Environmental legislation: legislate for a cap (as a percentage of project cost) on environmental monitoring costs
- Aviation and radar: The solution exists – QinetiQ developed it some years ago. Funding is needed to progress the technology to full application
- The other aspect is consenting. This should be handled by the IPC for all projects over 10MW (in line with the current FEPA limit.

We support the British Wind Energy Association's recommendations in response to this question.

Q8: Taking into account decisions already taken on the offshore transmission regime and the measures set out in the Transmission Access Review, what more could the Government or other parties do to reduce the constraints on renewable development arising from grid issues?

The Government's proposals to reduce the network-related barriers to the introduction of renewable generation are appropriate. However we have concerns over whether they will be delivered.

Both the TAR and offshore transmission regime are based on reacting to project proposals. A strategic approach to the large-scale upgrading needed for offshore R3 and exploiting marine resources could reduce delays, set the scene for project proposals to come forward, and would send a clear signal on the level of ambition. On a project-by-project basis, provided the stated aim of allowing a generation project to connect in the timescale required by that project is achieved and to this is added "and the cost of this access is reasonably predictable and not excessive", then grid issues would no longer remain a constraint. However, the conditions to ensure this are not in place, so we are not confident that this aim will be achieved.

It is necessary for Government to make the above a clear objective and embed it within guidance for Ofgem and, if necessary, Transmission Company licences so that the current suite of Industry Code modification proposals can be assessed within that framework. If this is not done, there is a very real possibility that the current industry change process will not deliver on these objectives. For the avoidance of doubt, the reason for such non delivery would not be because of any defect in the governance arrangements - it would be because the Government has not set a clear policy framework within which those arrangements should operate.

In order to reduce the significant negative effect that transmission limitations are having on the growth of renewable generation, improvements need to be made in two principal areas.

- Make better use of whatever network exists, generally by increased sharing of the network and
- Reduce the delays to the delivery of network reinforcements

We will also briefly address Ofgem's duties and the issue of priority access for renewable generation.

Reducing delays to the delivery of network infrastructure

The key government initiatives relating to this are the overhaul of the planning system and allowing transmission companies to invest in strategic new circuits, at least up to the stage of having obtained the necessary planning consents, ahead of there being sufficient specific generation projects that are able to provide financial commitment associated with this expenditure. The major significant delays and risks associated with the delivery of new transmission infrastructure are associated with the planning process. Making this more efficient and allowing the process to proceed on the basis of a well-based assumption about the volume of new generation in a specific area (rather than commitments from specific potential generators) should reduce this area of delay considerably.

All of this is mentioned in the Transmission Access Review and the proposals on planning reform. Proposals, of themselves, deliver nothing. What is needed is to ensure that they are carried through and deliver on their stated aims.

Making better use of the network

Many of the reforms being discussed in the Connection and Use of System Code (CUSC) working groups as well as possible reform of the SQSS arise from the physical reality that there is to be a large part of the generation mix that is dependent on variable primary energy inputs and a significant amount of low load factor generation whose role is essentially to complement this generation i.e. operate during any periods of high demand when significant renewable generation is not available. This results in a much higher volume of installed generation relative to peak demand than has traditionally been the case and removes the need for all of the generation to be able to operate at the same time. In other words it makes sense for major parts of the network to be planned to cope with a variable combination of the types of generation that may use it but not all the generation at the same time. We believe that, given that demand is to a first order fixed, planning a network on this basis should not lead to significantly increased constraint costs.

There will be parts of the network where several generators of the same type that are likely to want to operate at the same time are clustered together. It will be less appropriate for these generators to share that part of the network.

The key objective arising from the Transmission Access Review is that:

> "New generation projects should be offered firm connection dates, reasonably consistent with the development time of their project."

If this is achieved then developers should no longer be limited by delays to the provision of network capacity. As with the provision of physical network infrastructure, the key issue is whether this objective will be delivered.

Legislative background

On the primary duties of Ofgem you ask whether we think that Ofgem's statutory remit is causing difficulties in the achievement of the government's renewable and

emission targets. We agree with you that there are distinct roles for Government and the Regulator. It is clearly up to Government to lay down the framework in which it wants Ofgem to act.

We think, however, that where there are clear government targets (for example on emission reductions or a level of renewable energy production) then it needs to be made clear that it is not Ofgem's role to question these. It clearly needs to ensure that they are achieved at the minimum cost (and in doing this will be fulfilling its duty to protect consumers). It thus needs to make decisions that facilitate the achievement of government targets at minimum cost, rather than make decisions on the basis of whether those targets themselves are justified on a strictly economic basis.

To take a real example, we will use its "minded to" decision on CAP 148. We would not find it acceptable if in the end Ofgem rejected this proposal on the grounds that the cost benefit analysis did not favour it. It would however be acceptable to reject it if there was a different means of achieving the same result (earlier connection of renewable generation) that was cheaper and / or had other features that made it better than CAP 148 (for example possibly CAP 164).

In other words, if the government has a binding target for a given volume of renewable electricity generation, then it is up to the Regulator to take decisions that facilitate the achievement of this target at minimum cost (and of course taking into account other relevant factors), not to decide that the target does or does not make economic sense.

We are still sceptical as to whether this can be achieved with the current statutory duties of the Regulator. However so long as everybody is clear about and agrees on what the end result should be in terms of hierarchy of duties (facilitate the achievement of government targets / policy at minimum cost / any other adverse effects) then whether that is achievable with the current primary duties is a matter for lawyers to determine.

In terms of the draft Renewables Directive our view is that the provision for priority access for renewable generation is not necessary *if and only if* the delivery of a firm connection date reasonably consistent with the development time of individual projects is achieved. If this is achieved then priority access is not needed. However it should be made quite clear that delaying the connection of a new renewable project so that an existing carbon dioxide emitting plant can continue to generate with minimal constraints is definitely not acceptable and if this state of affairs continues then an explicit provision that may be phrased in terms currently proposed in the directive may be needed.

Q9: What more could the Government or other parties do to reduce supply chain constraints on new renewables deployment?

We agree with Berr's conclusion that it is up to the market to respond to policy signals put in place by Government, and there is not much more it could do, other than ensure that those signals are:

- Introduced early
- Clear
- Consistent
- Long term

Q10: Do you agree with our analysis on the importance of retaining the Renewables Obligation as our prime support mechanism for centralised renewable electricity?

We agree with retaining the RO to support the merchant renewable electricity supply market.

It is important that its complexity is managed by:

- Taking those things out that should not be there: - achieved by production tariffs for small-scale power generation and introducing a heat mechanism
- Allowing 10% of fossil fuel use for any purpose in thermal renewable plant (not just specified uses)
- Making the RO neutral to all waste. This would also assist with e current glycerol and biodiesel problem[6]
- Adopting a more pragmatic approach to the measuring of the biomass content of waste fuels.

These are explained further in our response to the RO consultation and Annex 3 hereto.

Q11: What changes (if any) should we make to the Renewables Obligation in the light of the EU 2020 renewable energy target?

In addition to the suggestions made in Annex 3 and mentioned in Q10 above:-

- The percentage quotas in the Obligation will need to be raised. Provided that a new tariff mechanism is introduced to support non-merchant renewable generation, the new level should perhaps be 40% by 2020 – also see comment on page 9 regarding the duration of support.
- The headroom margin should also be increased to 10%.
- The duration of the Obligation should be extended from 2027, perhaps to 2040.

Any proposals needed for the RO need to be evaluated in a holistic way. We are wary of the suggestion that support should be linked to wholesale prices.

If the changes summarised in our response to Q10 above are ***not*** made, the REA has concerns about the RO being fit-for-purpose for the bulk of renewable electricity deployment.

The degree of banding already due to come into effect stretches the complexity of the Obligation. The suggestion on page 97 of the document to have one band per technology and possibly sub-bands within each is ridiculous and potentially disastrous. In that case it would be far more sensible to move to a set of feed-in tariffs.

[6] Ofgem's legal advisors have said that under the current legislation biodiesel (and glycerol) must be regarded as fossil fuels. The wording which causes the problem was introduced in 2004, to get round the problem that used fuel oil (which had been defined as waste) rendered co-firing ineligible for ROCs.

Q12: What (if any) changes are needed to the current electricity market regime to ensure that the proposed increase in renewables generation does not undermine security of electricity supplies, and how can greater flexibility and responsiveness be encouraged on the demand side?

The provision of additional generation capacity can never have the primary effect of reducing security of supply. An inappropriate market structure, not well suited to a particular plant mix, could possibly have an adverse effect on security. There are two changes associated with the deployment of significant amounts of variable renewable generation that should be considered.

The first is that it is expected that there will need to be an increase in the amount of very low-load factor fossil fuelled plant on the system. Whilst it is possible that a business case can be made to build new plant of this type and keep existing plant on the system, this is far from clear with the current arrangements of receiving payment only when generating. It may be that naturally variable generators, low-load factor fossil fired generators and suppliers will contract together in such a way to ensure that there are enough low-load factor controllable generators available. This should be kept under review and if necessary some form of availability payment may be the best way to ensure that it is possible to finance such generation.

The second concerns the integration of variable renewables onto the system. As well an increase in thermal generation capacity, there are other approaches which can assist. Technology that allows demand to vary, either in accordance with price signals or indeed according to system frequency is either available or under development. More flexing of demand may in many cases be a more economic way to accommodate variable output renewable generation than increasing the amount of low-load factor thermal generation. Suppliers (for periods of a few hours ahead) and the TSO (for frequency response / within half hour variability) should be encouraged to contract with demand side service providers. If necessary modest amounts of additional income should be allowed for fostering innovative pilot programmes.

Chapter 4 – Heat

Q13: Assuming financial support measures are in place, what more could the Government do to realise the full potential of renewable Combined Heat and Power?

All public sector projects of a sufficient scale should specify that their heat requirements be met from a combination of renewable combined heat and power and on-site renewables.

Government needs to ensure that the balance between air quality concerns and the need to introduce large scale biomass is addressed so developments are not unnecessarily restricted. All bioenergy should be specified using the European Standards and where appropriate certification schemes should be introduced to ensure consumer/regulator confidence.

Q14: Are our assessments of the potential of renewable heat deployment correct?

The Government has at last demonstrated a welcome ambition for renewable heat. The assessments in the document are deliverable, whilst the potential contribution from non-biomass technologies, such as solar thermal and heat pumps may even be under-estimated.

The time has now come to move beyond assessing the potential and focus on maximising deployment.

As fuel prices rise the potential for renewable heat deployment increases. The REA believes that the Government should focus more on carbon savings than the actual cost of carbon when making decisions on investment in renewable heat technologies to ensure we hit renewable heat targets.

Q15: Have we captured the key features of a Renewable Heat Incentive and a Renewable Heat Obligation as they would apply to the heat sector correctly? Would both of these schemes be workable and are there alternative ways of structuring the schemes to ensure they can operate effectively?

In general we accept your analysis, and on balance agree with the conclusion that a Renewable Heat Incentive is preferable to an obligation. We elaborated on the reasoning behind this in our response to the Heat consultation earlier this year.

Suppliers of heating fuels other than gas (and perhaps a proportion of electricity) may need to be encompassed within the incentive. There needs to be a mechanism to even out the costs so that no suppliers are disadvantaged relative to each other.

The mechanism needs to be introduced quickly, with enabling powers brought in this Energy Bill.

Capital cost remains an issue for many householders and therefore a means of capitalising deemed revenue payments upfront would be very welcome. However this need not necessarily be an element of the RHI itself. There are alternatives, such as the scheme advocated by the REA whereby the upfront costs of installation could be met through a 'second charge on the property' (see Annex 5). As discussed elsewhere in this response, the REA has concerns that if done through the Government scheme, the rules for obtaining the support as an up-front grant could turn out to be overly bureaucratic. (see also answer to Q19)

Q16: Do you agree with our assessment that a Renewable Heat Incentive would work better in the heat market?

Yes.

Q17: What more could the Government or other parties do to encourage renewable heat deployment with regard to: awareness raising; air quality; building regulations; planning; anything else?

Awareness raising – Staff in Energy Saving Trust Advice Centres need an accredited training module on renewable heat (and electricity) technologies, covering their characteristics, advantages and disadvantages. Those giving information need to demonstrate their ability to provide accurate and quality advice in the same way as the REAL Assurance scheme provides standards for customer advice and information.

Air Quality – It is too easy at present for Environmental Health Officers to simply put a block on all biomass developments on the basis of the precautionary principle. This subject needs to be addressed as an air quality issue as a whole with responsibility shared between industry, the transport sector and biomass producers.

Building Regulations – These have proved a quick way of ensuring mass deployment of new technologies, such as condensing boilers. Spain requires solar thermal systems in all new buildings and we should consider similar approaches here. It may be more appropriate to relate such requirements to the Code for Sustainable Homes (and equivalent for non-residential), provided that the definitions are adequately developed (see below). As a minimum then the 2010 Building Regulations review should require CSH level 4 (not 3 as currently proposed) and the 2013 revision level 5.

Planning - Government should enable Local Planning Authorities powers to ensure that all large developments are heat-led with appropriate infrastructure/networks linked to area based master-planning. Heat networks should be required in all new developments above a prescribed size.

Other – Government should encourage the development of skills and training at an early stage, this could include the incorporation of renewable heat technologies, specifically heat engineering courses, within college and school curricula.

Q18: How far should the Government go in focusing on areas off the gas grid as offering the most potential for renewable heat technologies?

As fossil fuel prices continue to rise, renewable heat technologies become a real competitor to gas fuelled heating. While the off-gas-grid market should prove a relatively easy one in which to deploy renewables, Government needs to increase capacity across the board and must not focus excessively on minority sectors.

Chapter 5 – Distributed Energy

Q19: Do you agree with our analysis of the mechanisms for support of small-scale renewable electricity?

The REA Is not in favour of the support scenario for microgeneration electricity described in paragraph 5.2.6 and5.2.7 of the document, namely 40p/kWh paid on a deemed output basis, for 10-years' worth of production, up front.

Firstly there is no necessity for deeming the output from microgeneration electricity as metering is standard. Secondly capitalising the payments up front makes for a very expensive scheme.

With respect to small scale heat technologies, deeming the output is sensible, as metering - whilst possible – is not likely to be cost effective. Similarly, whilst capitalising the payments upfront may be desirable from the recipients' perspective, it is not an essential element for an effective support mechanism. With an output based reward scheme, the market could step in and provide the capitalisation through green mortgage arrangements or "second-charge" arrangements. See annex 5.

We are also concerned that the administrative arrangements could resemble those of capital grant schemes used to support householder renewables. A well-designed tariff based scheme for heat would be a long term, open access support measure. This is in contrast to grant programmes, which are typically short term and administratively bureaucratic.

See also our proposals for a Renewable Energy Tariff (annex 2) and re-charge scheme (annex 5).

Q20: Given the analysis on the benefits, costs and potential, in what way and to what extent should we direct support to microgeneration electricity?

Through a RET, as described in annex 2, however we do not believe that under the RET support should be limited simply to microgeneration (as currently defined) but should extend to larger non-merchant renewable energy systems. It needs to be complementary to the positive support being provided for central electricity generation through the Renewables Obligation.

Q21: If you agree that better information will aid the development of distributed energy, where should attention be focused?

Establishment of an accredited renewable energy advice service for householders with regular training and updates for advisors and input from an advisory board including industry representatives. The level of support for Energy Savings Trust Advice Centres (ESTACs) has not been increased sufficiently to recognise their role as the first point of contact for queries about renewables. ESTAC staff could play a key role in signposting and filtering queries to ensure high quality referrals for appropriate technologies and support packages.

There is also a need to promote the Microgeneration Certification Scheme (MCS) to the general public and to support it further until the industry matures. As distributed energy grows the MCS will need to be highly visible with good brand awareness.

Q22: Do you agree with the Government's current position that it should not introduce statutory targets for microgeneration at this stage in its development?

Yes. Any further targets would be better-focussed on demand pull rather than technology push. The present definition of microgeneration involves an arbitrary size limit, which does not per se justify a specified target.

We would like to see policy focussed on applications in particular sectors, as described above, where targets might be appropriate. In particular we believe targets would be justified in the numbers of homes upgraded towards zero carbon standards through the installation of energy efficiency and renewables. We have suggested the target should start at 100,000 homes in 2010 and rise to 1 million homes per annum by 2019. Even at this rate it would take until after 2035 years to upgrade the existing building stock. A sub-target for social and rented homes would also be valuable.

Q23: What more could the Government do to incentivise retrofit of distributed energy technologies?

Taking up from the last sentence of the answer above, an initial 10 year programme to retrofit renewable technology into Council and Housing Association properties should be introduced using the same approach as the Decent Homes programme. This could most effectively be done by co-ordinating with the cycle of heating or roof replacement programmes. It should also be done so as to prioritise the homes of the fuel poor.

Chapter 6 - Transport

Q24: How can we best incentivise renewable and low-carbon transport in a sustainable and cost-effective way?

We have answered this by responding to the additional questions subsequently circulated by DfT.

1. How could the 10% renewable energy target for transport best be achieved in the UK?

Investors in the industries that will deliver these targets require:

- signals from Government that are clear, consistent and long-term
- targets that are long-term, sufficiently stretching and binding both in theory and practice – a continuing series of reviews will not generate the certainty needed for investment decisions to be taken

- a trajectory between now and 2020 that is certain and achievable

Investment decisions take time to feed through into production. It is simply not feasible that biofuels in the UK can move from 5% by volume in 2014 to 10% by energy in 2020 if UK or EU industry is to make a significant contribution. In this context, the UK Government's decision to reduce the RTFO targets at 9 months' notice is at best a recipe for stalled investment. It is unclear why anyone not already committed would enter the sector with the current level of uncertainty. This applies both to development of existing technologies and so-called 'advanced biofuels'.

2. How might the RTFO be revised to help achieve this target? Which if any of the following options would be best, bearing in mind the aim to achieve a high level of greenhouse gas savings?

- **increase the level of the (volume) obligation to make it likely that the 10% by energy target would be met**
- **change to an obligation based on energy**
- **change to an obligation based on greenhouse gas savings**
- **change to a dual energy / GHG saving target**
- **include other transport modes (some or all of rail, air, sea, inland waterway)**
- **include other transport technologies (e.g. electric or hydrogen cars – if the electricity/hydrogen can be shown to be renewably sourced)**

The table on p168 discusses the possible future shape of the RTFO. As the rationale of the policy is to reduce GHG emissions, we suggest the RTFO target should be based on GHG savings as soon as practicable. The present system of a volume-based target should be retained until this can be implemented.

It may be appropriate to extend the RTFO to other modes provided that the same carbon and sustainability standards apply.

Hydrogen-fuelled cars could also be incorporated into the RTFO. The GHG emissions required to produce the fuel would have to be fully taken into account.

It is difficult to see how electric vehicles could be accommodated within the RTFO, where the obligation falls on fuel suppliers. Electric vehicles would require an obligation on electricity suppliers (arguably already covered by the RO), car manufacturers or users. It would also be essential to ensure there is no double counting of renewable electricity. Other policy instruments are likely to be more effective.

3. How desirable is it to have a buy-out price so there is a cap on the cost of the obligation? Could this be justified when it might mean that the renewable energy target would not be met?

We have no objection to the principle of a buy-out price but it should be set at such a level that it will be used only rarely, in order to give sufficient certainty to investors.

4. What should be included in the sustainability criteria for biofuels?

The UK biofuels industry is fully committed to the RTFO's sustainability standards. We want to see the full range of criteria, including social criteria, mirrored in the Renewable Energy Directive. While we respect the rules of the WTO they should not be an excuse for failing to introduce necessary standards.

The industry supports the principle of a requirement for a minimum level of greenhouse gas saving and is already working towards the UK's target of 50% GHG saving by 2010. We therefore support the proposed Presidency compromise in the EU for a staged target.

5. Is there a role for Government in encouraging the development of second and third generation biofuels? How could this best be done? Should there be a target specifically for advanced biofuels?

There may be a role for Government to play in promoting technological development of biofuels, which could include a specific target for 'advanced biofuels' – i.e. biofuels made from feedstocks that are not used for food production. As outlined above, there will not be serious investment in these technologies unless there is a working market for biofuels now.

6. What are the technical and other barriers to meeting the 10% renewable transport target in the UK, and how could these best be overcome? Could the target be met in ways that would facilitate progress to higher targets after 2020?

There needs to be specific incentives for higher blends of biofuels via the Alternative Fuels Framework. Again, this will require clear, long-term targets.

Q25: What potential is there for the introduction of vehicles powered through the electricity grid in the UK?

and

Q26: Over what timescales do you think electric vehicles could plausibly contribute to our renewable energy and carbon reduction targets and what could the Government most effectively do to accelerate the introduction of such vehicles in the UK?

The value of electric vehicles in reducing emissions would depend on how the electricity consumed is produced, and therefore the speed at which other measures under the strategy succeed in de-carbonising the grid. The full environmental and GHG impact of manufacturing the vehicles and their components would need to be taken into account. It would also be essential to ensure there is no double counting of renewable electricity. We agree with the document's analysis that they are unlikely to make a substantial contribution to the 2020 targets.

Although they may well have a major role to play in the longer term, there is the danger that policy focuses on distant solutions rather than resolving challenges around technologies that are available now. At present, the Government appears to be as enthusiastic about electric vehicles as it was about biofuels a few years ago. Again, industry needs clear decisions from Government that are consistent and long-term.

Chapter 7 – Bioenergy

Q27: How can we best ensure that our use of biomass is sustainable?

The REA is happy to see sustainability of biomass as a key issue in the consultation. Sustainability needs to be clearly defined and there need to be global criteria to ensure that sustainability has the same meaning for all products, traders and users.

Generation under the RO will need to be brought into the frame driven by the requirements of the Renewable Energy Directive. At present these generators have perhaps been lulled into a false sense of security through the currently limited requirements under the RO. The knowledge base of companies which have an interest in biomass for both transport and power is far greater than that of companies operating under the RO. Whilst the association has striven to raise awareness and promote the move towards sustainability criteria across the board, generators whose

operations may have begun well before these concerns came to the fore will need time to adjust.

Development of Sustainability Criteria for Biomass standards is underway in CEN (European Committee for Standardisation) and will soon be developed within ISO (International Standards Organisation). Other organisations, including the Global Bioenergy Partnership (GBEP) are also discussing standards. It will be critical that there is continuity in the standards to ensure that trading is not restricted. The REA approves of the meta standard approach, utilising existing standards where possible.

It is also important for the UK that the sustainability standards have a high degree of credibility and integrity with all stakeholders (including the general public) to ensure biomass is an acceptable form of fuel, especially as the RES is considering that approximately 35% of the renewable energy may come from Bioenergy.

The Government should:

- Establish a Biomass 2020 taskforce to address issues such as air quality issues, fuel quality, quality assurance and certification, sustainability and a roadmap for biomass take-up.
- Take an active role in supporting the development of the CEN/ISO standards through funding experts, inputting into the development process and ensuring that the CEN or ISO standards are promoted where standards need to be incorporated. For example, the Renewable Energy Directive should use these standards where possible rather than developing new criteria and methodologies.

To maintain the credibility of the fuels the REA would recommend that the standards are used for the development and required use of a UK-wide certification scheme for biomass to ensure virgin feedstocks come from sustainable sources. The REA is actively working with HETAS on a scheme at present.

Q28: How do you see the market for biomass developing to 2020? What are the implications for:

a) Imports;

b) Longer-term prices and costs?

The market for biomass should continue to develop, subject to the sustainability and air quality issues being addressed.

With the development of 2nd and 3rd generation biofuels in the later period, not only will there be a requirement for more imported fuels, it is likely that there will be more competition for the various fuel feedstocks. Therefore, we would reiterate our comment above that there is an urgent requirement to establish standards for fuels.

At present, imports are perceived to be bad by NGOs due to carbon miles. While the REA accepts we should utilise the indigenous biomass fuels first, we believe there will need to be a better understanding (by the public) of how imported sustainable biomass can contribute significantly to meeting our targets.

As with any commodity market (both for feedstock and fuel) prices are influenced by supply and demand – but there is not a direct correlation between prices for biomass and oil or gas. The Austrian wood pellet market demonstrated that this wasn't the case in 2006, when price fluctuations created a major downturn in their markets due to a number of factors, which were supply and demand-led, unrelated to oil prices.

Q29: Should the Government take further regulatory measures to discourage biomass waste, including food waste, from going to landfill? If so, which types? What, if any, other measures should be taken to encourage its use to generate bioenergy?

Yes. As with other European countries, such as Finland and Sweden, regulation should be considered to ensure that better resource segregation is carried out, at source, for food residues (such as in canteens), retail waste food (out of date food products), construction and demolition wood and municipal waste. By providing the requirement to segregate the bio-fraction of waste streams, it is highly likely that utilisation of the resources near to their disposal can be achieved.

Separate food collections from households must become the norm to avoid food being mixed in with residual waste (black bag) collection systems. The government has sponsored WRAP (Waste Resources Action Programme) to launch a number of pilot schemes in the country. If food waste is collected separately[7] on a weekly basis, it is possible to collect the remainder at longer intervals. CLG's National Indicator 192 (NI 192) could be used as the vehicle for moving to such a system. In principle, food waste should go to AD and green to composting and this should be reflected in NI 193.

At present, the Waste Authority gets recycling credits for the treatment of food waste under NI 193. However there is no differentiation between treatment by composting (which consumes energy) and treatment in AD (which produces energy). This should change for food waste – there should be double credits for AD – so 2 tonnes counts as one towards re-cycling. The waste hierarchy should also be revised to increase the priority on AD.

Q30: What more could the Government or other parties do to help to ensure the provision of sufficient Waste Incineration Directive-compliant combustion capacity to burn available waste wood alongside other biomass, and what else might constrain the development of this capacity?

Classification of wood and other biomasses as a waste undermines their value as a fuel. The legal requirements, the bureaucracy involved in holding, transporting and using the material and stakeholder concerns are all important. It also has to be recognised that the Waste Incineration Directive (WID) has, by its complexity and complex operational requirements, reduced the amount of biomass used. Hence the issue is not so much how more WID-compliant plant can be built but how to ensure that the nation's biomass resource can be exploited without the need to invoke the WID. We note that the EA is currently undertaking a substantial programme of identifying whether materials are indeed wastes or, if they are so classified, whether their characteristics and intended use can declassify with respect to the WID. This process needs to be recognised as highly important in encouraging the widespread use of a wide range of biomass since it allows its combustion in existing combustion systems (including co-firing plant) as well as new plant which will not require the extra bureaucracy, capital and operating costs associated with WID. We need to focus more on the emissions from a plant rather than the feedstock, recognising the need to be firm on those areas, such as where wood is contaminated or has been chemically treated.

More consumer-focused awareness needs to be carried out to ensure that WID combustion plants are viewed positively.

[7] Some Member States have separate collection of used oils and fats, which again could bring many benefits with respect to renewable energy policy.

The London Mayor could reverse the London Plan's requirements to use advanced technology combustion plant. Waiting for 'jam tomorrow' solutions may result in poor decision-making now.

Q31: What further actions will improve supply chain efficiency, consumer confidence and sustainable growth of the biomass supply chain?

Introduction of a renewable heat incentive and having a pro-active transparent and visible bioenergy implementation policy in Government and public sector buildings.

Building a wide variety of dedicated energy crops is particularly important as these fuels can contribute towards the development of a viable UK biomass industry and contribute to security of long term volume. Consideration needs to be given to the definition of energy crop with respect to the Renewable Obligation.

Current programmes and current market conditions are inadequate to deliver the 300,000-350,000ha energy crop objective set out in the Biomass Strategy, particularly if the focus is simply on SRC and miscanthus.

Q32: What barriers exist to the cost-effective deployment of anaerobic digestion, biogas and the use of biomethane injected directly into the gas grid, and what are the options to address them?

Many of the issues are generic, or affect more than just AD, e.g. high grid connection costs, difficulty with planning consent, and the lack of a renewable heat incentive (which we are glad to see finally being addressed and on which we have commented elsewhere in the response on this issue).

AD-specific barriers are highlighted below

Loss of green benefit when biomethane is injected into the grid. This would be addressed by a feed in tariff for biomethane, discussed elsewhere in this document.

Germany is mirroring many of the provisions established for the priority access of renewable electricity to the grid, in the treatment of bio-methane. There may be elements that could be considered for the UK.

Lack of support for smaller farm based AD. At the moment there is no incentive for a farmer to treat his/her own farm slurries by AD. A slurry pit will suffice, even though it emits methane. Top-up grants for farm-based AD to compliment the 2ROCs/MWh available under the banded RO should be introduced. These could equally apply to multi-farm AD, and community projects.

Over-bureaucratic environmental permitting for AD plant and the transport, storage and spreading of digestate. The current classification of manures and slurries as waste, once digested, should be reversed, to avoid disincentivising small farm biogas. These smaller plant may choose not to go through PAS certification if they are using digestate on the own farmland. The REA Biogas group is at present engaging with the Environment Agency regarding Environmental Permitting, and standardised permits for certain categories and sizes of plant have been proposed. Administrative efficiency might be improved by centralising expertise within EA, thus reducing the need for training locally.

Competition with composting with respect to National Indicators. When local authorities conclude Local Area Agreements (LAA) with Government on re-cycling targets, anaerobic digestion of source separated food waste (which qualifies as re-cycling) should be the preferred option. It should therefore score higher than in-vessel or windrow composting.

Lack of a standard for digestate and the accompanying certification scheme. This has been a barrier, but is now being addressed. The digestate standard and quality protocol are nearly ready, and the REA will introduce a Biofertiliser Certification Scheme over the next few months.

Q33: What action could we take to make biomass communications more effective to both improve public awareness and help to address acceptability issues, and how should this be delivered?

- Increase the emphasis on the one stop shop – the Biomass Energy Centre – through appropriate resources and expanded remit (covering all biomass, including waste). This may require it to be relocated.
- Develop quality-validated data across all areas of the bioenergy industry so that policy decisions are made on an accurate evidence base.
- Carry out continuous sampling in the field trials for PM2.5s, PM10s and NOx. This would demonstrate whether biomass is the problem that it is perceived to be or, as we believe to be the more likely outcome, demonstrate that it is not.

Q34: Are there issues constraining biomass supply and use other than sustainability, supply chain and information issues? How should these be tackled?

The key issue is capital cost, which we have dealt with in other sections. There are also the issues surrounding physical space for installing plant and storage facilities.

The Strategy document is pessimistic in estimating the volumes of biomass which can be produced in the UK and particularly from forestry. Current indications are that the focus is on under-managed woodland (ignoring the fact that such woodland is under-managed precisely because the costs of extraction are high) rather than in better commercially managed locations with a focus on the exploitation of the existing timber infrastructures and in developing new resources.

It would therefore be worth Defra examining the potential of the Forestry Commission (FC) in better optimizing UK biomass use in support of both public enjoyment and professionally managed harvest practices. Current FC policy appears to be over-focused on social policies for public access and support of healthy living targets on the production of biomass. This may have been a viable policy when the UK forest products market was poor but such a policy now needs a radical transformation in order to address the challenges of the Renewable Energy Strategy. One solution might be to transfer the regulatory and environmental components of the FC to Natural England allowing the commercial part to operate as a biomass grower and supplier, possibly through a privatization process. The rationale is to encourage the use of forestry as a renewable biomass source. Whilst we may not be self-sufficient in this area, there is a need to encourage the use of more efficient energy crops as a means of reducing the amount of land used for energy.

Chapter 8 - Innovation

Q35: How can we adapt the Renewables Obligation to ensure that it effectively supports emerging as well as existing renewable technologies? Are there more effective ways of achieving this?

Please refer to Annex 3.

Q36: Is there evidence that specific emerging renewable and associated technologies are not receiving an appropriate form of support?

There is ample evidence that marine renewables technologies are not receiving appropriate support – marine renewables are not accessing the MRDF and are not being deployed. Some leading companies have raised 10 times as much private funding as the support received from government and there are more projects proceeding abroad (e.g. in Spain, Portugal and Ireland) than in the UK.

As regards what needs to be done to rectify this, please refer to annex 6.

Q37: Are there barriers to the development of renewable and associated technologies that are not addressed by current or proposed support mechanisms?

R&D support for renewables is becoming increasingly 'hit or miss' as the technology support frameworks change.

The Technology Strategy Board does not have any representation from the energy sector at board level. The expert assessment process for R&D proposals has been progressively watered down over time.

In theory the advent of the Energy Technology Institute should help. In practice though the introduction of successive new bodies has served to confuse rather than illuminate, and it seems that the many different entities in the sector[8] would need to spend an increasing amount of resource co-ordinating with each other rather than supporting new developments.

The ETI needs clear governance arrangements and to be explicit in the criteria which it uses to select projects for funding.

Chapter 9 – Business Benefits

Q38: What more could the Government or other parties do to ensure that the UK secures the maximum business and employment benefits from the EU renewable energy target?

Just focus on delivery primarily through market incentives and regulation. If there is a strong, growing, visible market with low political risk, our members will secure the investment required to maximise the benefits to UK Plc.

The summary to Chapter 9 makes all the right noises (providing support for new technologies, providing a clear long-term policy framework for renewables). We need to see some action now.

Many government documents proudly state that the UK leads globally on marine RE, but a home market is needed before businesses can exploit the global potential. Other countries are catching up – in December 2007 the US government authorised an annual spend of $50 million between 2008 – 2012 for marine renewable energy research and countries such as South Korea, Portugal, France, Spain and South Africa have a more "hospitable" attitude to deployment of marine energy generators than the UK.

Competition with the offshore oil and gas sector is proving to be a major business issue. Seven years ago, the company Engineering Business was the biggest wave, wind and tidal developer, but it has now decided that it is not a "sensible use of

[8] Including the Technology Strategy Board, the Energy Technologies Institute, the UK Energy Research Centre, the Energy Research Partnership, the Carbon Trust, the Energy Saving Trust, ITI Energy, the SuperGen programme of the Research Councils, to name just some.

intellectual or financial resources" when there is so much work available through telecommunications and the oil and gas industries.

Competition with the oil and gas industry for resources – such as deployment equipment and vessels – has also hampered the UK's leading wave and tidal energy developers. Support from the government in this area, for example through provision of dedicated deployment equipment, would provide significant acceleration in the sector.

Chapter 10 – Wider impacts

Q39: Do you agree with our analysis of the likely impacts of the proposed increase in renewable deployment on:

- **carbon dioxide emissions;**
- **the local environment;**
- **security of supply;**
- **energy prices;**
- **fuel poverty;**
- **the energy market;**
- **the economy;**
- **any other wider issues that we should be considering?**

In principle, the time for these questions has passed. These are assessments that must have been done before the targets were adopted. The priority now must be in finding the best and most cost-effective way of meeting the binding targets now being implemented.

The focus on energy prices is less appropriate than looking at energy bills (as the document also does), since only that way will energy efficiency be properly prioritised. In particular, a coherent approach to energy conservation and renewables (such as our proposals for existing building stock) can reduce fuel poverty contrary to your assessment.

We believe the likely trends in fossil fuel prices will be such that the incremental cost of renewables will be substantially less than you predict. Analysis by the German finance ministry[9] suggests that their more comprehensive programme could have a negative overall cost differential.

We believe your assessment of the likely job creation potential is understated. There are now nearly ¼ million jobs in the German renewable energy industry and they still have a penetration into their energy mix below the UK 2020 target.

Chapter 11 – Delivering the target

Q40: What more could the Government or other parties do to ensure the UK meets the EU renewable energy target?

Government should co-ordinate ministerial responsibilities for meeting the target into a single department headed by a cabinet minister. The current diffusion of responsibilities between Berr, Defra, DfT and CLG (amongst others) makes coherent policy measures difficult however 'joined up' the aspirations.

A 2020 Energy Taskforce should be established under this minister and include other relevant Government departments, the renewable energy and energy efficiency

[9] See http://www.r-e-a.net/document-library/thirdparty/071031GermanCCP.pdf

sectors and stakeholders from the energy, building, transport, agriculture, commercial and financial industries.

Q41: Do you agree with our overall approach to developing a UK Renewable Energy Strategy?

We accept that the document represents huge progress.

There are always 'buts' ...

- You need much more urgency
- The strong focus on trading is unjustified – aim to beat the target from our own resources
- Stop reviewing all the options to death. We've got a target; now how do we meet it most cost effectively?

Ensure your approach delivers a Strategy that is:

☆ Urgent ☆ Ambitious ☆ Holistic ☆ Efficient ☆ Inclusive ☆ Consistent

Questions in the Annex

We have responded to the QA questions in our Annex 2.

Separate Annexes

The following annexes are submitted below or separately

Annex 1 REA proposals from this response

Extract of the proposals made in Section 2 of our response

Annex 2 Responses to the questions on a feed-in tariff

In response to Annex 2 of this consultation documents

Annex 3 High level issues on the future design of the RO

This is also submitted as part of our separate response to the RO consultation, several parts of which are also relevant to this response.

Annex 4 Issues in relation to the inter-relation between policy measures

In particular the treatment of de facto emission rights between generators and users, and issues of additionality, double counting and carbon accounting between policy measures

Annex 5 The RE-charge scheme

An REA proposal for supporting the capital costs of consumer residential energy efficiency and renewable energy systems

Annex 6 Proposals for a strategic approach to marine renewables

Further to our view in the innovation section that emerging sectors of strategic importance to the UK need a targeted plan

Annex 7 The Energy 2020 Manifesto

A policy statement signed by the REA alongside more than 25 different organisations about the priorities for energy policy to 2020

Annex 1 Listing of REA proposals

We have made a large number of proposals in Section 2 of our response.

This Annex extracts these proposals for ease of reference.

Centralised electricity generation

- ☆ Improved access to grid by moving to 'connect and manage' from the present 'invest and connect' approach
- ☆ Strategic approach to new transmission infrastructure in areas with anticipated major growth (including offshore and Scotland)
- ☆ Exclude issues covered by the new National Policy Statements from the scope of local planning decisions, as these should only address project-specific local issues
- ☆ Create an incentive for local authorities to meet their share of their region's UK renewable electricity target through a renewable planning reward grant
- ☆ Increase RO quota to 40% by 2020 and the headroom to 10%. Extend the RO to at least 2040
- ☆ Take ROC inflation into account when setting the Obligation levels otherwise delivery will be lower than intended
- ☆ Introduce a production tariff for renewable heat, which is complementary to the RO, and allow more flexibility in the way renewable energy producers meet their customers' needs
- ☆ Introduce a tariff payment for bio-methane fed into the gas grid
- ☆ Encourage the productive use of waste heat from all new thermal generation
- ☆ Encourage biomass co-firing capability within any new CCS (carbon capture and storage) schemes
- ☆ Alignment of regulator's remit with national policy objectives
- ☆ Within the scope permitted by EU Directives, develop appropriate consenting methodology for large-scale projects (e.g. Severn Tidal Barrage and remaining Scottish and Welsh large hydro potential), which may have local environmental disadvantages but larger global benefits
- ☆ Implement a comprehensive energy labelling and robust green tariff system

Renewable heat

- ☆ A support mechanism for renewable heat, introduced swiftly
- ☆ The biomass element of mixed waste should be eligible for any heat incentive from the outset
- ☆ Incentives for the introduction of heat networks, and a requirement that new developments above a certain size must be built with heat networks
- ☆ Proper incentives for biomass so that biomass heating/CHP is more widely used
- ☆ Introduce mandatory sustainability standards, and accompanying verification processes for the use of biomass for energy, which are consistent across the power, heat and transport sectors.

Decentralised energy

- ☆ The introduction of a Renewable Energy Tariff (RET), as outlined above

- ☆ Specific routemaps to develop leading decentralised energy technologies, including heat pumps, photovoltaics and solar thermal
- ☆ Strategic support for heat networks both in new developments and, where appropriate, retro-fit
- ☆ Adoption of smart technology whenever new meters are fitted, and a timetable for smart metering nationwide

The built environment – new build

- ☆ Zero carbon definition to prioritise use of on-site renewables, with a 'safety valve' only where this is not practical or prohibitively expensive
- ☆ If the safety valve is in the form of a 'buy-out' it should:
- ☆ The Standard Assessment Procedure (SAP) and other applicable calculation methodologies should be updated to be fit for purpose in the transition to a zero carbon built environment
- ☆ Zero carbon and CSH definitions that allow all useful technologies to be deployed at all levels
- ☆ Building regulations revision in 2016 to mandate zero carbon homes
- ☆ Building regulations revision in 2010 to achieve CSH level 4, and in 2013 level 5
- ☆ Exempt from stamp duty new houses built to a CSH level higher than the minimum requirement in building regulations
- ☆ Reduce council tax banding by 1 band for every CSH level above the minimum requirement in building regulations
- ☆ The development of a Code for Sustainable Buildings, adopting the same principles as the CSH
- ☆ Revise building regulations to reflect the zero carbon objective
- ☆ No increase in rateable values to apply in relation to the installation of renewables or energy efficiency
- ☆ Fiscal incentives such as Enhanced Capital Allowances and business rates relief for all forms of energy efficiency and renewables

The built environment – existing building stock

- ☆ Renewable Energy Tariffs (as described above) to support decentralised energy more widely, strongly and consistently than has been achieved by the Low Carbon Buildings Programme
- ☆ Fiscal incentives such as stamp duty, VAT and council tax relief for homes with energy efficiency and renewables - e.g. those for new homes above and the following for homes built before 2010:
- ☆ Use building regulations similar to those to be applied to new buildings to improve existing buildings when they are extended or altered
- ☆ Improve operation and cost-effectiveness of the Microgeneration Certification Scheme (MCS) by appointing an appropriate scheme administrator; promote it more widely and provide financial support during its first years of operation
- ☆ A national scheme to address the capital cost of retrofitting renewables, for example paid for through a 'second charge' on the property (our proposals on this are described further in Annex 5)
- ☆ An accredited and fully funded sustainable energy advice service for householders with an advisory board, including industry representatives

- ☆ An initial 10-year programme with yearly targets to retrofit energy efficiency and renewables into council and housing association properties
- ☆ An accredited and fully funded sustainable energy advice service for local authorities and housing associations with an advisory board including industry
- ☆ Fiscal incentives such as enhanced capital allowances and business rates relief for all forms of energy efficiency and renewables
- ☆ No increase in rateable values to apply in relation to the installation of renewables or energy efficiency
- ☆ A requirement for Energy Performance Certificates to be made available for all non-residential buildings whenever they are sold or rented

Commercial and industrial applications

- ☆ Design the Renewable Energy Tariff (RET) so systems installed by industrial users for their own use (not for the primary purpose of selling the output) are eligible
- ☆ Allocate zero emissions to renewables under the CRC irrespective of whether ROCs are claimed
- ☆ Allow on-site renewables to be reported as having zero emissions under Defra's reporting guidelines
- ☆ Incentivise applications in non-residential buildings, as described above

Other decentralised applications

- ☆ Create a tariff band in the RET for small-scale hydropower
- ☆ Streamline the process for abstraction and impounding licences for hydro-generators

Transport

- ☆ Any biofuels targets must be binding, challenging and long-term - at UK and EU levels
- ☆ Establish a linear trajectory from 2010 to achieve the 2020 target. This should be done taking into account the development of an indirect land use change methodology
- ☆ Any requirement for part of the target to be allocated to new solutions that do not compete with food production, should be introduced no earlier than 2020, and limited to one-fifth of this target.
- ☆ Back and publicly champion the UK's world-leading sustainability standards and the strong environmental performance of UK biofuel producers rather than back away from targets
- ☆ Establish mandatory carbon and sustainability standards for transport biofuels as soon as possible
- ☆ Extend mandatory sustainability standards to all energy uses of biomass. This is discussed further in 'Bioenergy' below
- ☆ Policy must ensure an effective market for today's technology – a prerequisite for industry investment in future solutions such as 'second generation' biofuels and alternative vehicles
- ☆ Be realistic about the contribution that alternatives to biofuels can make by 2020
- ☆ Introduce specific incentives for higher blends of biofuels, using the Alternative Fuels Framework
- ☆ Do not neglect the potential contribution from biomethane and ensure that it is supported alongside liquid biofuels

Biofuels and sustainability

Bioenergy

- ☆ Revise the waste hierarchy as it impinges on biomass, and revise national indicators accordingly
- ☆ Implement the Waste Incineration Directive such that if focuses on outputs (i.e. air emissions) rather than inputs (i.e. fuel source)
- ☆ Make the RO a more effective mechanism for encouraging energy from waste
- ☆ Ensure the biomass content of mixed waste is eligible for the renewable heat incentive from the outset
- ☆ Resist pressure to address indirect economic impact on other sectors, e.g. oleo-chemicals or chipboard manufacture, by limiting the use of certain biomass fuels for renewable energy
- ☆ Create tariff bands in the RET for biomethane fed into the grid
- ☆ Any specific support for farm based AD should be separate from the RO or RET, and administered by Defra
- ☆ Simplify and standardise environmental permitting for AD plant
- ☆ Support the development of industry certification for AD
- ☆ Priority access for biomethane into the grid
- ☆ Ensure that the implementation of the Waste Framework Directive and WID does not impinge negatively on biomass residues on account of their provenance
- ☆ Continue to encourage the use of energy crops through the RO
- ☆ Review air quality standards to ensure they are appropriate for biomass
- ☆ Extend sustainability protection measures to all uses of biomass

Innovation and emerging technologies

- ☆ A strategic approach to areas of particular future potential for the UK
- ☆ Policies to overcome the 'valley of death' between R&D and commercialisation – an example being the need to support companies to gain access to the MRDF
- ☆ Financial support measures that minimise risk for emerging technologies
- ☆ Reintroduction of R&D grants for marine energy devices from the Technology Strategy Board (TSB)
- ☆ Assistance for companies to meet the entry requirements for the Marine Renewables Deployment Fund (MRDF)
- ☆ The maximum awards available under the MRDF need to be larger, and the overall size of fund increased
- ☆ The cost of environmental monitoring should be capped at a realistic and proportional level, within a defined maximum percentage of the project cost
- ☆ Government should share the risk of decommissioning and take on the post-decommissioning perpetual liabilities
- ☆ Marine renewable energy developments greater than 10MW should be licensed through the Infrastructure Planning Commission
- ☆ The new MMO should be a UK-wide body whose remit explicitly recognises the contribution of renewable generation to climate change mitigation.
- ☆ Develop a national strategic plan for marine renewable technologies

- ☆ Develop a national strategic plan for offshore wind technology, covering offshore transmission infrastructure and consideration of the Offshore Super-grid proposal
- ☆ Review the installation resources available for offshore wind (and in due course, marine renewables) and establish a national collaborative platform to ensure that ships and equipment can be available when needed
- ☆ Targeted D&D (development and demonstration) support for products that are closer to market than normally catered for by existing R&D grants
- ☆ Identifying high potential areas such as building-integrated PV and micro-wind and ensuring that:
- ☆ Specific assessment of products and technologies with potential in the non-residential decentralised energy sector, and strategic plans for early deployment
- ☆ Adoption of smart technology whenever new meters are fitted; and a timetable for smart metering nationwide
- ☆ Investment in know-how and funding to deploy intelligent networks to permit timely and economic delivery of renewable power
- ☆ Review of potential approaches for load management control to be applied at the level of consumer units or individual appliances
- ☆ Review the potential for electric vehicle battery charging as a balancing facility

The public sector

- ☆ Place responsibility for the achievement of sustainable energy targets within a single department under the control of a cabinet minister
- ☆ Establish under this minister an Energy 2020 Taskforce to include (inter alia) representatives from all relevant Government departments, the industry and stakeholders from the above and the financial sectors
- ☆ Align the regulator's remit with national policy objectives
- ☆ Establish a strong cross-departmental resource to advise on sustainable energy measures, to audit and enforce standards and to publicise best-practice approaches
- ☆ Develop concerted and long-term programmes of awareness-raising in all sectors
- ☆ Lead by example in the adoption of energy efficiency and renewable energy in property portfolio and vehicle fleets
- ☆ Be at the innovation edge for raising standards, e.g. when Building Regulations require CSH level 4, Government procurement should specify CSH level 5
- ☆ Consider renewable installations for all capital replacement programmes using a whole-life costing approach.
- ☆ Maximise use of sustainable biofuels in vehicle fleets and encourage the use of flex-fuel, biogas and hybrid vehicles
- ☆ Implement an annual carbon budget process that mirrors annual financial budget processes
- ☆ Develop a strategy and milestones to bring their entire operations to zero carbon by 2050

The financial sector and related services

- ☆ Policies, support mechanisms and fiscal measures need to be clear, long-term and consistent, so financiers can take a view on investment returns without having to factor in high levels of political risk

- ☆ Financing support for community ESCos (energy service companies) to develop and be able to sell to commercial entities without it affecting their funding
- ☆ Office of Government Commerce could be a vehicle for providing security, loans and support for public sector organisations - such as schools - to become local energy providers
- ☆ Air quality, decommissioning and other consenting issues need to resolved to avoid the potential for future class actions against insurers of plant
- ☆ The Carbon Trust changes its IP model. Support from the CT requires developers to give up their IPR which they are obviously reluctant to do. The CT must recognise that the value of a technology development company is vested in its IP.

Annex 2: Renewable Energy Tariff (RET)

The document and these questions use the terminology 'feed-in tariffs for small-scale electricity generation'. The REA advocates the use of a broader Renewable Energy production Tariff (RET) as we explain in our answer to QA2 below.

QA1: Do you agree with our assessment of the basic starting principles that feed-in tariffs for small-scale electricity generation should adhere to? Are there other principles you think we should consider?

REA agrees that the banded RO should be the main support mechanism for merchant renewable electricity production from mature technologies in the UK.

The arguments in the draft as to whether the RO or a Tariff is most suitable for local renewable generation miss key points;

- Additional support is needed to the RO to expand UK renewables capacity beyond Obligation levels and the obligated parties. This is necessary to meet the targets, address exclusion of certain renewables from the energy market, and to ensure the potential for renewable heat and gas is also optimised.
- The Obligation was designed for the energy suppliers and not for other potential participants such as local authorities, householders and farmers.

A key principle for future support mechanisms should therefore be that any support mechanism should incentivise the expansion of renewable energy capacity above and beyond the Obligation through a simple and bankable model for investors outside the energy sector. As the RES points out, the RO has failed to stimulate significant investment in microgeneration, or in larger local schemes.

According to Dr Herman Scheer (co-architect of the German Tariff system) 90% of the investment attracted under the German Tariff has come from private individuals, private investors and municipal energy companies. This suggests a combination of a Tariff for those outside the traditional industry combined with an Obligation on major suppliers could result in an optimum UK policy framework for renewables.

A simple and consistent Tariff mechanism is needed for renewable power and renewable heat to provide simplicity and confidence for those outside the energy industry. Householders and businesses would be confused by different mechanisms for different types of technology.

QA2: What are your views on the option we have described? Factors we would like you to consider in your response include:

- **if there are problems with the option described or improvements you suggest;**
- **if you can envisage a more effective way of implementing feed-in tariffs for small-scale electricity generation.**

We agree the need for a mechanism that provides support at levels prescribed for each type of system based on energy produced.

REA's proposed Renewable Energy Tariff (RET) shares similarities with the German feed-in tariff, but differs in one key respect:

- It is based on energy produced (whether or not that energy is fed into a grid)

This change means that the RET can apply to renewable power, heat and gas generated at the local level. It can therefore meet the Strategy's objectives both for the feed-in tariff and for the Renewable Heat Incentive.

We envisage the Tariff being administered by an agency established jointly by the major suppliers; similar to the Non-Fossil Purchasing Agency (indeed its remit and ownership could potentially be extended to accommodate this task). This body would ensure that costs are shared equitably between suppliers much as illustrated in the diagram in the draft. It may also administer funds from other sources, and it could also manage instances where there is no incumbent supplier.

A tariff approach is also ideally suited to feeding bio-methane (i.e. biogas purified to natural gas specification) into the natural gas distribution network.

QA3: Are there any other bodies or organisations that would be impacted by feed-in tariffs for small-scale electricity generation that we have not considered?

A very broad range of bodies and organisations could be involved in a Tariff scheme under the headings you list as 'generators' and 'customers'. As indicated above, we believe this measure may apply to any generator or user outside the energy supply industry, so may include anyone from an individual householder, farmer or mill owner; through community organisations and property managers; to commercial entities like supermarket chains and telecommunications providers.

We would suggest that BERR needs to consider the interaction of a Tariff with the existing commercial sector framework including commercial sector landlords to determine how they can be incentivised to make use of the Tariff.

The land and agriculture industry in particular supports our RET proposal and this sector has proved to be very active in those markets where Tariffs exist. The Tariff should specifically seek to stimulate renewables investment by this important sector which can potentially access significant and diverse renewable energy resources.

Another stakeholder group you should consider are the installers. The expansion of renewables at the local level could help address serious energy sector skills shortages, as the training needs for many renewables can be learned quickly by trades-people like plumbers or electricians. It will be important to ensure skills can keep pace with demand and to engage with the relevant professional bodies.

For many of the subsequent questions we believe the details can be consulted on and assessed later before secondary legislation is drafted to bring the RET into effect.

QA4: Who do you think should have access to feed-in tariffs for small-scale electricity generation? Factors that we would like you to consider in your response include:

- **different generation technologies;**
- **size of generation station (i.e. to distinguish from eligibility of large-scale generation for support under the Renewables Obligation);**
- **whether generation is primarily for own use, supply locally or for export;**
- **whether generation is on or off-grid;**
- **whether or not energy efficiency measures should be required**

The Tariff should be available to individuals and organisations other than utilities and specialist renewables project developers who want to invest in renewables to improve the carbon performance of their homes, buildings, businesses or energy supplies generally.

It should be available to all renewable technologies certified under the MCS, and for renewable heat, CHP and gas as well as electricity. It should apply to all energy produced, whether used locally or exported, and to on- and off-grid applications.

The RET should be clearly differentiated from the RO so that the RO is safeguarded and its participants have clarity of the size of the obligated market. The basis of such

differentiation needs to be assessed further (and our RET proposals allow this to be defined as part of the secondary legislation).

Superficially, station capacity may prove the easiest criterion, in which case the level would need to be such that it catches most of the envisaged non-merchant generation including commercial schemes. This would certainly take the size way above the existing definition of microgeneration. This is expanded further under the heading "threshold issues". However, it may be that criteria may be based on other parameters to closer represent the policy intent we propose under QA1 and QA3 above.

We believe there is also merit in emerging technologies being supported in their early years through the RET mechanism as it gives a known price for every megawatt-hour delivered. The tariff should stimulate investment and innovation beyond the domestic sector. It should enable projects that can offer community-level interest and involvement. It should ensure that projects can duly harness local available renewables resources without technology specifications subject to distortion by inappropriate subsidy thresholds. It should assist local or regional authorities in fulfilling the PPS on Climate Change.

Wind faces particular barriers at the local level which greater community investment may help to reduce (see Berr report above). Community-owned wind farms typically of 5-10MW are common elsewhere Europe but not in the UK. These and systems for commercial users would represent the upper level of any Tariff application REA would advocate for local renewable power. We envisage there may in this range be an option to choose either the RO or a Tariff but not to move between the mechanisms.

REA strongly supports energy efficiency and a recent study shows that the UK could plug its 'energy gap' by meeting EU targets for energy efficiency and renewable energy. Those installing on-site renewable electricity are unlikely to be wasteful of it. It may well be that they choose to generate somewhat more than they are likely to consume themselves, and this should not be discouraged. We are not convinced that there is merit in reinforcing energy efficiency measures, but would welcome this being subject to further consultation.

QA5: Do you think it is reasonable to put in safeguards to limit the potential cost of feed-in tariffs for small-scale electricity generation, and if so how could those safeguards be set, and what would the access criteria be? Possible factors and criteria we would like you to consider include:

- **a limit on overall number of new installations in a given period;**
- **a limit on new installed capacity in a given period;**
- **whether priority should be given to particular groups; for example, people in fuel poverty**

Provided that there is sufficient flexibility to adjust tariff levels as the market develops, we do not feel that these additional complexities are required.

The urgent need to act, the demonstrable affordability of Tariffs in practice, the increasing volatility of fossil fuels and the UK's poor historic performance on renewables are all strong reasons for not limiting uptake of local renewables under any Tariff scheme.

Furthermore while the RES argues that the Tariff should be appropriate for the UK's liberalised market, it needs to be recognised that the market is squarely oriented towards centralised power generation and needs modifications to address the

current disincentives for decentralised energy. This would benefit future consumer choice, competition, sector diversity and market innovation.

Work will need to be done to ascertain the correct Tariff to leverage a step-change in investment, without over-rewarding.

The Tariff measure has attracted the support of fuel poverty groups in recognition of the fact that this could help finance local authority or RSL intervention that seeks to protect vulnerable households from energy bill price hikes through the use of onsite renewables. This is particularly the case in hard-to-treat properties, which are off the gas grid and/or have solid walls. There is no presumption in the Tariff clause REA advocates that the Tariff would necessarily have to be funded through socialised cost across all users; in any event the cost would be minimal compared to the massive cost increases driven by the fossil fuel markets.

QA6: How would we set the feed-in tariffs for small-scale electricity generation?

The tariffs should encourage the full spectrum of renewable generation technologies and at a level appropriate to their different production costs and in such a way as to offer generally neutral support between technologies.

There is much international experience we can draw on in defining the best way of designing these particular aspects of the scheme, so the following responses represent only our first thoughts.

We would envisage a tariff for each technology and maybe a scaling factor for individual installations over a certain capacity threshold (so a commercial-scale PV system may receive a lower tariff than a domestic one).

A long-term framework is needed and we suggest that once granted a tariff should apply to an installation for a period of 20 years.

Tariff prices should, in principle, reduce year on year in response to industry/national developments. However the ability to increase individual tariffs may also be required if some technologies are not delivering at the required level.

No special provisions seem to be needed for sites with multiple technologies.

QA7: What arrangements should apply to:

- **currently existing small-scale renewable electricity installations;**
- **installations which enter into operation before feed-in tariffs come into effect?**

Existing and new small scale installations should be given the opportunity to switch from current RO support to a feed-in tariff. This will have minimal impact on the RO as the vast majority of schemes supported by the RO will be unaffected.

If the new arrangements are sufficiently attractive, small-scale generators will 'vote with their feet' and move from the RO to the new feed-in tariff relieving the administrative burden on Ofgem.

Ideally we favour all installations under 50kW being required to follow the tariff route, and all those between 50kW and the upper threshold having the option. We discuss the threshold further below. We agree with paragraph 10 of the document which proposes that those eligible to receive feed-in tariff payments should not also be able to benefit from other schemes.

QA8: Do you think that financial markets will move to assist potential small-scale electricity generators with financing of the initial capital cost of renewable installations, or should we seek to introduce policies that will guarantee frontloaded support?

The guaranteeing of up-front support is not essential, and may even be undesirable. It would have a significant cash-flow impact which might risk the mechanism being rejected on cost grounds and the mechanism might prove to be over-bureaucratic.

The REA has been in discussion with the European Investment Bank on the possibility of providing capital support for a potential second charge scheme to fund householder renewables (RE-charge – see Annex 5). Support in the region of £10 Billion over a 10 year period was discussed as a serious proposition.

While initial capital costs are an issue for the domestic sector we expect the Tariff to apply to other key sectors, like commercial, construction industry and public sector where a longer pay back period is acceptable.

The level of investor interest, including for new financing models or Energy Service Companies will obviously depend on the levels of support set and the robustness and longevity of the mechanism.

QA9: How should the costs of feed-in tariffs for small-scale electricity generation be met?

The Energy Bill amendment we support deliberately leaves open the question of how revenue should be raised to pay for the Tariff. This should be decided after consultation. It may be a socialised cost among energy consumers, or it may be a mixture of this and other sources of revenue e.g. EU ETS auctioning.

The payment, charges and administration of the feed in tariff should be administered by energy suppliers probably acting jointly through an agency. See QA2 above. This will need to be overseen by the regulator.

Installation of smart metering should make payment calculations easy.

Payments should be made quarterly or monthly to coincide with the issuing of bills. This, together with smart metering, will enable small scale users to be conscious of their own electricity balance sheet and thereby encourage behavioural change, procurement of energy efficient goods and better energy management.

Threshold issues

To only introduce feed in tariffs for under 50kW installations would be a major wasted opportunity. We need a massive boost in on-site generation, and a simpler support mechanism that can be readily understood by company boards in making investment decisions on areas outside of their core business. Industrial on-site generation is unlikely to be in units of 50kW and under. In the case of wind, we believe it is more appropriate to think in terms of one or two, possibly three larger wind turbines.

However, many commentators, including some REA member companies, have expressed concern that such a high threshold might have a negative impact on the Renewables Obligation. This is most definitely not the REA's intention, as we are fully supportive of the continuation of the RO as the main mechanism for expanding the growth of bulk renewable electricity capacity.

The REA executive believes that a proper consultation process would enable these concerns to be addressed. In particular it is difficult to gauge the degree to which a

tariff would be attractive in comparison to ROCs, in isolation from considering the feed in tariff levels. Instead, there has been an unhelpful focus on the size threshold as the proxy for safeguarding the RO.

For example, we would not envisage the tariff available for wind to necessarily be higher than that which could be obtained under the Renewables Obligation. Indeed it may even be slightly lower than the payments currently available under the RO. It is worth noting that the German Feed in tariff for wind is substantially lower than the revenue obtainable under the RO.

In contrast, we would expect that the payment level for PV to be somewhat higher than that available under the RO.

We are therefore not suggesting any specific threshold level in this response. It needs consultation in the context of potential tariff levels. It might well be the case that different thresholds may be needed for different technologies.

Annex 3 High level issues on the future design of the RO

Complexity

The complexity of the banding arrangements already stretches the RO to a threatening degree. In our response to the initial consultation on banding (in October 2006) we favoured having a small number of bands into which technologies were placed. The May 2007 consultation document recommended 4 bands, and the REA responded with a suggestion that a band be inserted between the 1 and 0.25ROCs/MWh. This happened by default when the co-firing banding was increased, resulting in a 0.5ROCs/MWh band.

The current consultation document introduces new technology definitions, but keeps to five different remuneration levels.

The RO(S) seems likely to introduce two more band levels (3 and 5 ROCs/MWh[10]) and the Renewable Energy Strategy document (page 97) raises the question of having one band for each technology, possibly with sub-bands to enable the less economic sites to be progressed in parallel with sites with a better resource. This could lead to at least 20 different remuneration bands, which would make a mockery of the RO philosophy and be far more complex than the most elaborate of feed-in tariffs. The table below summarises the proliferation of technology definitions and banding levels in successive consultation documents.

Consultation	Technology definitions	Remuneration bands
BERR, Oct 2006	Not elaborated	4
BERR, May 2007	16 (see footnote below for list) [11]	5
Scottish Govt, April 2007	17 (above plus addition of island wind – although subsequently dropped)	6
BERR, July 2008	18, (the original 16 plus co-firing of biomass with CHP, dedicated energy crops with CHP)	5
BERR (RES) July 2008	Sub bands within a technology	One per sub band….

There seems to be a worrying tendency to ever greater complexity, and yet banding has not even been introduced.

[10] Although the REA is now of the view that there is no justification for allocating different multiples for wave and tidal stream.

[11] Sewage gas, landfill gas, co-firing of non-energy crop,(regular) biomass, Onshore wind, hydro-electric, co-firing of energy crops, EfW CHP, Offshore wind, dedicated regular biomass, Wave, tidal stream, ACTs, dedicated biomass burning energy crops, biomass CHP, PV, geothermal

Removing elements that are best dealt with elsewhere

The RO is clearly more effective in stimulating the deployment of some technologies and resources than others. The REA believes that the RO is weakest in the areas described below, and that if these were taken out of the RO, and the rules surrounding thermal generation were simplified, as REA suggests, there would be multiple benefits. We would like the changes below made as soon as possible, with enabling powers sought under the current Energy Bill.

The treatment of renewable heat

At present, in the absence of an RHI, the RO attempts to stimulate renewable heat production. It does this by using the CHPQA system to determine eligibility for CHP EfW or Biomass ROCs. However, this does not work and the problems stem from the fact that the CHPQA was designed for an entirely different purpose – making sure that fossil fuel fired plants were worthy of claiming environmental benefits by virtue of their GHG saving benefits relative to power-only plants. Also, the plants in question were based on gas-turbine rather than steam cycle technology.

The sooner heat and power can be treated separately, with $MWhs_{(e)}$ rewarded via the RO and $MWhs_{(th)}$, through the RHI, the better. It will reduce the complexity of the RO significantly, and allow renewable generators flexibility to meet their customers' heat and power needs in the optimum manner.

The payment per MWh_{th} should be calculated so that there is no particular incentive to produce electricity over heat, or visa-versa. Transition and grandfathering arrangements will need careful attention.

Small scale generation

For household generation the administrative arrangements are inappropriate. At present Ofgem estimates around 70% of its time is spent on administering projects under 50kW. Whilst some of this burden should shift onto suppliers due to changes in IT systems, this will be counteracted by growth in household renewable generation. For small-scale industrial on-site and community projects, the complexity of the RO is a major problem. The entities seeking to develop these projects will not be not specialist project developers. There needs to be a simple and straightforward policy readily comprehensible to a busy board of a company for whom energy is not its core business. See the discussion on threshold issues above, in Annex 2.

Annex 4 Inter-relation between policy measures

Environmental awareness has been encouraged and has grown in recent years. Ultimately, consumer pull has the potential to be the strongest and most enduring signal. Once the 'playing field is level' and the right signals and information are in the market it is customer demand which will ultimately sustain the renewables market.

Energy policy should therefore strive to always encourage and optimise demand for conservation and renewables. Yet recent policy decisions not only ignore the consumer demand aspect, but often work in the opposite direction, cutting consumers out completely.

This brief annex focuses on four policies of particular concern. These are:

- Defra's best practice GHG emissions reporting guidelines;
- Ofgem's green electricity supply proposals;
- The proposed Carbon Reduction Commitment (CRC); and
- The Climate Change Agreements (CCAs)

We would like to see the following changes:

- Coherent policy between financial incentives (in relation to GHG reporting, a carbon price and the RO)
- Consistency between EU and UK policy (in relation to green supply and emissions trading)
- Consistency between Government organisations (in relation to green supply)

To illustrate these concerns a case study from the document follows at the end.

A coherent policy

REA's view is that for the foreseeable future

a) consumer demand;
b) a carbon price; and
c) support schemes for renewables

should combine to create a healthy incentive for renewables.

Once renewables reach maturity a support scheme will no longer be needed and just consumer demand and a carbon price will need to remain. Consumer demand causes the least interference with the market, support schemes for renewables the most. At the moment renewables developers can often be faced with a situation of having to choose between a, b and c above. Support schemes for renewables are being allowed to crowd out consumer demand. Support schemes for renewables are also requiring exception to be made for a uniform carbon price. A coherent policy is required to allow all three to be accessed simultaneously and for all installations.

Defra's GHG reporting guidelines (for electricity generation)

Being able to report emissions from electricity generation as zero is valuable to an organisation. It will often be an important aspect of the decision to invest in renewables for non energy companies, e.g. McCain, in the case study referred to below. Yet despite taking responsibility for their emissions from electricity, companies with on site renewables are required to report the electricity as having the same emissions as the average grid mix if ROCs are claimed. This is common across most

Defra policies. This discourages consumer demand and disengages consumers as discussed below.

Defra's view appears to be that the RO includes a payment for the lack of emissions (or emissions rights). Therefore zero carbon emissions cannot be reported unless the claimant foregoes ROCs. The argument goes that if ROCs are claimed, then as supply companies ultimately pass the costs of the renewables obligation onto their customers, electricity consumers as a whole own the emissions rights.

Therefore an on-site user directly supplied by a renewable generator will not be able to lay claim to the environmental benefits unless ROCs are foregone.

Ofgem's green supply guidelines

The philosophy running through Ofgem's latest guidelines on green supply is diametrically opposed to Defra's philosophy. Ofgem believes that it is the *physical supply* that is important in reporting emissions and it doesn't relate to whether ROCs are claimed or not. As well as being in conflict with Defra's philosophy, Ofgem's approach is also contrary to the information presented to customers via the Fuel Mix Disclosure reports that Suppliers are legally required to provide.

The Fuel Mix Disclosure requirement arises from the European Directive on the internal market in electricity. Since 2005, suppliers have been obliged to put details of the mix of fuels used to produce the electricity supplied along with certain environmental information on customers' bills. Percentages of coal gas nuclear renewable and other fuel sources are given for supplies as a whole (i.e. not by individual tariff). Emission figures are also given on the basis of the mix.

The end result is that customers buying from a supplier with contracts for 100% renewables can be informed that their electricity is entirely renewable, but that its emissions correspond to that that of the average grid mix. Concurrently through fuel mix disclosure they are also provided with information that the associated emissions are zero. All in all a very confusing and unsatisfactory state of affairs!

The conflicting philosophies and the end result in terms of what entities can claim are summarised below.

Agency	Philosophy	Relevant policy
Defra	You can only claim the emissions savings associated with being supplied with renewables if no-one else has subsidised it.	Greenhouse gas reporting guidelines
Ofgem	You can only claim the emissions savings relating to the electricity you are physically receiving i.e. average grid mix, but you can claim that the electricity you are paying for follows the contractual route at supplier level.	Green supply guidelines
EU	You are informed of the renewables proportion of your supplier, plus the emissions associated with that composition (not the average grid mix). The proportion is determined by the contractual volumes of electricity supplied by different sources.	Fuel Mix Disclosure

The REA's philosophy for green supply is that the proportion of renewable electricity supply should follow the contractual arrangements. This would entail each supplier providing a fuel mix disclosure report for each of its tariffs. It would therefore follow that if all of its renewables had been accounted for by its renewables tariff, then those on a non-renewable tariff would be supplied with 0% renewables. The

emissions should correspond to that of the fuel mix disclosure. Because of the difficulties of delivering additionality through green tariffs inherent with the Renewables Obligation, it is only right to inform renewable tariff customers that they cannot regard their actions as directly contributing to more renewable output by signing up to the tariffs.

Companies should be able to report on their greenhouse gas emissions if buying under a green tariff, thereby creating a demand for the product.

We would therefore expect that the small amount of renewable electricity generation we currently have in the UK would be completely accounted for, with the result that it is clear that there is no more to go round. This may then result in a premium being placed on it, and ultimately to more generation being driven. It is not perfect, but this approach at least does not disenfranchise voluntary demand.

For more detail, see the REA's response to Ofgem's last two consultations on Green Supply.

Examples of three cases

Below three different cases are described along with what would be their percentage of renewable supply and associated emissions. It is clear there is significant discrepancy and confusion.

A company directly supplied with electricity from onsite renewables

Under **Defra's reporting guidelines** the company would have no emissions from this electricity, if it were *not* claiming ROCs, but the average grid emissions if it *were* claiming ROCs.

Under **Ofgem's green supply philosophy**, this company would be able to claim its supply as 100% renewable, with no emissions *regardless* of whether it were claiming ROCs or not

Its **Fuel Mix Disclosure (FMD) report** is not relevant if if does not buy power from the grid.

A company buying electricity under a green tariff

Under **Defra's reporting guidelines** the supply would be regarded as average grid mix, and average grid emissions.

Under **Ofgem's green supply philosophy**, the company can claim it is receiving 100% renewable electricity, but would have to report that this had average grid mix emissions.

The **FMD report** would report the average proportion of renewables and emissions for the supplier as a whole. This may well conflict with the information from Ofgem, (except in the unusual case of a supplier which contracted only with renewable generators). Thus the FMD report will be likely to contradict with Ofgem's report significantly.

A company under a brown tariff

Under **Defra's reporting guidelines** the supply would be regarded as average grid mix and average grid emissions, as it also would under **Ofgem's green supply philosophy.**

The FMD report would give the proportion of renewable electricity contracted for by the supplier as a whole, which is likely to differ from that of the average grid mix.

The Carbon Reduction Commitment (CRC) and Climate Change Agreements (CCAs)

The CRC encompasses sites whose electricity consumption is greater than 6,000 megawatt-hours (MWh) between 1 January 2008 and 31 December 2008.

The CRC is designed to drive emissions reductions by giving organisations a financial incentive via emissions trading, combined with corporate social responsibility incentives through publishing companies' performance in a league table. All allowances will be sold (then auctioned in subsequent phases), with the revenue recycled to participants. Most of the rewards will be proportional to companies' baseline emissions, but some will be on the basis of performance in the league and for special energy efficiency measures.

Companies have to buy allowances according to their carbon emissions. Companies will have to buy allowances for the carbon emissions relating to the on-site renewable generator (as if it were not renewable) if the generator earns ROCs.

Generally, companies will only find it cost-effective to install onsite renewables if they *are* able to claim the ROCs they are entitled to. Consequently, as well as having to buy emissions allowances for the onsite renewable generation, the company's relative place in the league table will not be improved if it displaces all its electricity purchases with on-site renewable generation.

This approach is inconsistent with the approach under the EU emissions trading scheme. Renewable installations do not have to report emissions under the EU emissions trading scheme, irrespective of whether ROCs (or alternative support in other countries) are claimed.

Energy intensive companies will generally not come under the CRC and will instead generally have a CCA. Under this, they will be required to reduce their emissions by a certain amount in order to qualify for an 80% discount on their climate change levy charge. The problem is the same if an organisation installs renewables onsite but claims ROCs - the emissions from the onsite generation have to be calculated as if they are average grid mix emissions.

Whilst there is consistent application across the GHG emissions reporting guidelines between the CRC and CCA, the same does not apply with the climate change levy and carbon emissions reduction target. Benefits can still be claimed from the latter two schemes irrespective of whether ROCs are claimed.

Implications with respect to disengaging customer demand

This particularly affects Companies wanting to either buy in or generate their own electricity on site. This is usually done for a combination of reasons, often including

- The kudos of doing the right thing, environmentally
- The desire to safeguard against the rising costs of energy
- A financial saving

There may also be a mistaken belief that it will help meet their requirements under their CCACRC.

A case study of a disengaged customer

McCain in Cambridgeshire installed 3 onsite wind turbines and anaerobic digestion, for which it claims ROCs. Consequently the electricity from these turbines does not count as zero carbon under its Climate Change Agreement.

The company is featured in a one page case study on page 146. Thus the Government has allowed itself to take credit for the benefits, whilst having rules which prevent the company from taking any of the credit itself from its investment. It is reported in the box that 7,500 tonnes of CO_2 emissions have been saved, yet under Defra's GHG reporting guidelines McCain cannot make this claim itself.

Those that take the initiative and responsibility for their emissions, as McCain has, should be recognised for doing so, both in their GHG reporting and by not being penalised under the CRC or CCAs for emissions they have not emitted. If the Government itself leads by example and makes such investments on its estates, which we very much hope it will do, it should also be able to claim these renewables have reduced emissions.

McCain claims that it would not have invested in renewables had it known that it would neither carry corporate social responsibility benefits nor be admissible under the CCA.

This mismatch between government rhetoric and commercial reality risks disenfranchising much of the business sector from the environmental debate.

Box 5.2 Case Study – Renewable Energy at McCain, Cambridgeshire

At its production site in Whittlesey, Cambridgeshire, McCain Foods has implemented a number of initiatives to improve its operational efficiency and sustainability. As part of its strategy to save on manufacturing costs, McCain has invested in energy efficiency measures, in three wind turbines and an anaerobic lagoon, digesting waste water to produce biogas. Around £10 million was invested in three of the UK's most powerful 80 metre high 3 MW wind turbines, in expectation of future energy cost increases.

During an 18 month period of consultation, planning and installation, the suitability of the ground conditions and the wind profile, and data from an existing large wind farm within 15 miles of the Whittlesey plant were assessed. From initial discussion stages, McCain worked closely with the distribution network operator, and associated costs were lower than expected, as a robust 11 kW connection already existed on the site. The turbines were situated on the industrial site, approximately half a kilometre from the nearest property, minimising any objections to the turbines' visual and noise impact. Through close work with the local council and the Environment Agency, the support of the local community was secured.

Six months since their activation, the wind turbines have already reduced the plant's carbon dioxide emissions by 7,500 tonnes. At certain times of the year, the turbines will power the entire site, potentially generating 60% of the plant's electricity needs – 32,200 MWh annually, enough to power around 7,500 domestic houses.[153] When the plant is not in use or the turbines are producing surplus power, unused electricity is sold back to the National Grid.

McCain saw the investment in renewable electricity generating technologies not only as a sustainable way to power the plant, but also as a good financial case. Conservative estimates predict the wind turbines to payback in around 3½ years, with increases in energy prices and better wind speeds likely to improve this payback period.

Summary

Green supply and GHG savings relate to voluntary demand, CCAs and the CRC provide a carbon price, and the RO is the UK method of renewable support. At the moment the requirement is to choose between these but this isn't the most appropriate or efficient way to organise these policies.

A carbon price and renewables support can work together – after all, the more support there is for renewables, the lower the carbon price will be. If consumer demand can be harnessed, that could also mean less support is needed in future for renewables than otherwise would be.

The policies are also inconsistent among themselves. The CRC and EU ETS take different approaches as do the fuel mix disclosure guidelines and green supply guidelines. This causes unnecessary confusion and complexity and will ultimately lead to less renewables and/or a higher cost to be paid for renewables.

Annex 5 The RE-Charge Scheme.

Introduction

Household on-site renewable energy could play a crucial role in helping local authorities achieve domestic carbon reduction targets and provide the crucial impetus needed to make domestic renewable heat a realistic option.

Householders generally find the capital costs of installing renewable energy equipment a barrier. There are several approaches to overcoming this

- Grant schemes (which have had mixed success)
- An upfront payment under a Renewable Heat Incentive (obviously for heat installations only), or
- the RE-Charge Scheme

Some advantages and disadvantages of grant based schemes

There have been a number of grant schemes used in the UK to encourage the take-up of householder renewables. These funding mechanisms have had the benefit of providing a boost to the industry, brought wider attention to the renewables sector and provided financial incentives to householders to install a range of renewable technologies in their home.

There have been downsides to grant-centred approaches. They have made the potential for growth in the on-site renewables sector 'grant dependent' in the absence of any other funding support mechanism. Grant-based schemes have been time-limited leaving the industry facing a predictable 'cliff edge' when financial incentives disappear and demand plummets.

Are 'soft loans' the answer? – the experience of one English Council

'Soft loans', with very low rates of interest, have been floated as a method of boosting the microgeneration sector. A Council in Southern England has been running an interest free renewable energy loan scheme covering all the principal technologies for a 10 month period. Over this period 223 requests were made for information, resulting in 8 applications of which only 5 actual loans (for solar water heating) were eventually paid out.

The purchase of renewable energy equipment is not an essential item for householders and purchase of it requires ready cash for something which is not a necessity; even if that is limited to regular loan repayments at a low rate of interest.

RE-Charge – A second charge on the property to boost on-site renewables

The attraction of a second charge scheme is that it would lack any significant upfront cost to the householder or any monthly loan repayments. Once the 'kit' is installed the householder gets the benefits of renewable energy immediately. For many this 'no cost' option should in fact result in a reduction in monthly fuel bills providing an additional incentive to take advantage of the scheme. A £5 million RE-Charge scheme is scheduled to be launched by Kirklees Council in April 2008.

What is a second charge on the property?

A second charge is an alternative name for a secured loan, so called because the loan is guaranteed or 'charged' on your home, and is the Second Charge on your home – your Mortgage being the first. The holder of a second charge has a legal call

on the property in the event of the borrower defaulting on repayments, but only after all liabilities to the holder of the first charge are settled.

How could the scheme operate?

The householder applies to have on-site renewable technology installed in their home to a maximum value of £10,000. Any excess above this amount will have to be paid upfront by the householder. Approved contractors selected though a competitive tender process will install the kit. A £10,000 limit is set on the second charge to ensure the maximum number of homeowners are able to take participate in the scheme. The £10,000 limit is very roughly equivalent to the current cost of an average 2kWp PV system, a full wood pellet boiler installation or a ground sourced heat pump system. There will be a legal cost for setting up the second charge of between £200 and £300. This cost could either be paid up front by the householder or be rolled in with the second charge. It would be reasonable to ask householders to pay this charge upfront bearing in mind the value of the renewable energy installation. This would free up more funds to support more installations for more householders

A 'revolving' RE-charge fund

When a property that has benefited from the scheme is sold the second charge will be recovered and paid into a revolving fund to be used again to provide further second charges to other householders enabling the installation of more renewable technology. This will have the advantage over grant schemes of being a more cost effective use of funds.

Is negative equity a significant risk?

The risks associated with negative equity for the scheme are limited. The value of the second charge is limited at around £10,000. The scheme will be most attractive to the majority of owner occupiers who have considerable equity in their property gained through years of sustained rises in house prices. The possibility of negative equity impacting on the recovery of the second charge following repossession can be further limited by assessing this risk at the application stage of the process.

Advantages of the RE-charge scheme

Cost effectiveness/value for money – Unlike grant programmes the money invested in a second charge scheme is not lost. It can be recycled and reused for more installations upon sale of the property

No/minimal upfront costs to the householder – Householders have a variety of calls on often limited funds for home improvements and repairs and leisure activities which limit their ability to decide to install microgeneration. The second charge enables householders to decide to install renewable energy in their home with no impact on other day to day priorities. This also makes the use of renewables to assist owner occupiers in fuel poverty a real option.

Immediate financial benefits of some technologies – Technologies which use solar, wind or heat from the ground could have an immediate impact on reducing fuel bills for many households.

Contributes to the reduction of fuel poverty - A certain proportion of the funding - a minimum of 10% - could be earmarked for households identified as suffering fuel poverty. This will be of particular benefit for hard-to-treat households in areas off the gas network where there are limited options for cost effective low carbon heating e.g. oil and on peak electricity.

Contribution to achieving 2020 Renewable Energy target – It has been estimated that around 1% of the 2020 target of 20% can be met in the new build sector through the Zero Carbon homes policy. The potential for renewables within the existing housing sector is much greater and could be as much as a quarter of the total target. Onsite renewables can also play an important role in helping achieve the 2010 and 2020 renewable electricity targets. This will be particularly important for local authorities based in largely urban council areas where there is little potential for wind development.

Security to industry/Zero Carbon Homes – a second charge scheme would provide the certainty the industry needs in order to grow and develop in readiness for the challenge of delivering Zero Carbon homes in 2016 and meet the Code for Sustainable Homes Level 5 in 2013.

Reduce fossil fuel dependency – a large scale second charge scheme enabling millions of householders to install renewable energy will have a major impact on reducing our dependency on fossil fuels and thereby helping address security of supply concerns.

Some possible sources of finance

Further financial and organisational support will be sought from Energy Suppliers through CERT obligations, Regional Housing Boards and RDAs.

What sort of bodies could deliver a RE-Charge scheme?

There are a number of bodies that could enable delivery of a second charge scheme. The scheme could be piloted on a regional basis with support from Regional Development Agencies. Local Councils could also have a role in delivering such a scheme. Sheffield City Council operates a loan fund for private sector housing improvements for all 9 South and West Yorkshire Metropolitan Councils. A particular benefit of involving a third party in the delivery role is that it provides a valuable advocacy role for householders who may have little knowledge of the technologies, its costs and capabilities.

Key issues to address

Financing the borrowing – 2 approaches could be taken to this issue. Either you accept that it is good value for money to use householder capital to pay for renewable installation and government takes the interest 'hit' on the borrowing or you could seek get others to finance the borrowing such as Energy Suppliers.

Financial sustainability – If the aim is to maintain a high volume of installations, at what point does the scheme become self-sustaining at high level through the recycling of loans in the revolving fund (following house sales)? A detailed financial model of the RE-Charge scheme would be needed to test out scenarios.

Inappropriate installations – We would want to ensure that installations met high standards and that the technology used and their siting is such that they will generate optimum amounts of energy. This could be addressed at the outset through the standards the scheme operates to, such as the REAL Assurance Consumer Code.

Conclusion

A second charge scheme could deliver large numbers of renewable heat and power installations to millions of homes in the UK. To progress the scheme further will require detailed financial modelling to enable the concept of a second charge scheme to develop into a detailed proposal. This would enable government to

seriously consider it as a major climate change mitigation initiative which engages millions of householders.

Annex 6 A strategic approach to marine renewables

The UK has 50% of Europe's wave energy resources and 35% of its tidal resource. To date we are the acknowledged world leader for marine renewables and we do not wish to lose this position as the technology moves into the commercialisation phase because other countries overtake the UK as more attractive markets.

Key to addressing this problem is to get the support mechanisms right.

Discussion on support mechanism options

Wave and tidal stream technologies need to move from the R&D stages through to commercialisation. At present there is still a large degree of technological divergence, suggesting further R&D is required, and some of the further-developed concepts need assistance to be moved from prototypes to commercialisation and thereafter large scale deployment. Inevitably therefore, there needs to be support appropriate for a range of technology development stages.

The consultation document asks whether the RO is the best support mechanism for bringing forward emerging technologies. Opinions vary within the membership as to the optimum mechanism and over time the REA has expressed various views. This can be explained by the fact that we have mostly been responding to consultations where various options have been offered, and our suggestions have therefore largely been confined to the art of the possible.

There are two basic approaches:

- Revenue-based support, set at high enough levels to encourage investment in technology development as well as to reward output, or
- Grant-based support, aimed to bring down the capital cost of individual projects and eventually generation costs as a whole

There is quite a deal of agreement that the RO is a problematic mechanism to use as a means of *encouraging investment*. Very high multiples of ROCs would be required, which could lead to some devices being over-rewarded and the risk of ROC inflation. The inflexibility of the RO (with banding reviews at relatively infrequent intervals) is also a problem. A feed-in tariff approach may be better in that respect. Both, however, suffer from the fact that in the early days of deployment, when technology risk is a major factor, it is difficult to make a business case for a project when its income is wholly dependent on electrical output. These are high capital cost projects, with uncertainties over the achievable load factors and questions over technical availability and O&M costs.

This suggests that if the RO rather than feed in tariffs are used, much of the premium price would best be given via a parallel measure such as the MRDF. This is because the combination of grant support and short term revenue premium is quite attractive when trying to reduce the impact of technology risk on the business case. It reduces the capital cost and for a period of several years also provides enhanced revenue support to compliment the RO income. This will help overcome any lower than expected revenue in the early life of the device/array, which is precisely the period when unexpected post deployment issues are likely to arise. Given the capital cost of any marine project will be more certain (excluding any extended costs getting

planning permission…) than the load factor, availability and O&M cost, having a capital grant directly benefits a business case and reduces the impact of technology risk.

The Scottish Government is, however, proposing to use the RO(S) to encourage investment as well as reward output – through awarding 3 and 5 ROCs respectively to tidal and wave energy. The REA believes there is no justification for awarding different levels to these technologies, and will be responding separately to the Scottish Government on this issue. It should be noted that this does differ from our response to the Scottish Government's previous consultation on banding.

Coming back to the MRDF, the REA has historically been critical that the funds have not been spent. This could be addressed by either altering the qualification criteria to allow easier access, or by providing more support for the earlier stages of device development, in order to assist developers gain access to the MRDF. We have previously argued for the former, but now accept that the entry criteria are more or less right, provided that assistance is put in place to assist developers access the fund. Another argument against simply 'pulling forward' the MRDF, by making it more accessible for less developed projects, is that it could result in a support vacuum at the subsequent stage of development.

There may be other approaches to the MRDF for providing the short term additional revenue to boost the income achievable under the RO, such as tax allowances. However many device developers would not be paying corporation tax, and would be required to team up with partners that do, in order to benefit.

Priority recommendations

We recommend the following:

- ☆ **Assistance to enable project developers to gain entry to the MRDF**
- ☆ **Increase the overall size of the MRDF, and the maximum sums available per project**
- ☆ **Bring back RD&D funding for marine renewals under the Technology Strategy board - the Energy Technologies Institute is not an adequate substitute**
- ☆ **The Energy Technologies Institute should be more open about its selection procedures**
- ☆ **The cost of environmental monitoring should be set at a realistic and proportional level, as a fixed percentage of the project cost**
- ☆ **Government should share the risk of decommissioning and take on the post-decommissioning perpetual liabilities**
- ☆ **Marine renewable energy developments greater than 10 MW should be licensed through the IPC**
- ☆ **Better targeting of financial support and more open procedures for early stage wave and tidal stream devices**
- ☆ **Reintroduction of R&D grants for marine energy devices from the technology strategy board**

- ☆ **The Carbon Trust changes its IP model. Support from the CT requires developers to give up their IPR which they are obviously reluctant to do. The CT must recognise that the value of a technology development company is vested in its IP.**

For the wider marine sector: use of renewable energy

In addition we also make some suggestions to promote the use of marine renewables in the wider marine sector.

- ☆ **Ports: Many ports generate their own power. Ports are good locations for wind, wave and tidal power resource. Incentivise the introduction of renewables generators into the port structures, such as breakwaters and seaward facing harbour walls**
- ☆ **Shipping: Incentivise the introduction of hybrid-powered craft – use of Flettner rotors, sails, solar power etc to augment conventional powering**
- ☆ **Boat building: construction sites are usually on the water, with a better wind resource than on land. Some boat building procedures are energy-intensive. Incentivise deployment and facilitate licensing of wind turbines**
- ☆ **Marine navigation: Many lights on buoys are currently powered by renewable sources (of necessity in the absence of a grid connection). Near-shore buoys and beacons could be fitted with larger wave or tidal generators, for micro-generation with an off-take to shore.**
- ☆ **Marine Leisure and Recreation: Provide facilities for marine activities that utilise the free wind and wave resource, such as surfing, windsurfing, kite surfing and sailing. This may have the additional advantage of encouraging the public away from gas-guzzling activities such as power-boating and jet skiing.**

Annex 7 The Energy 2020 Manifesto

We support the transition to a sustainable energy economy, welcome progress made since the first joint statement of interested bodies in 2006, and call for greatly accelerated action.

Policy priorities

We believe that the UK's energy policy should:

- Uphold the vision and objectives **for sustainability, security, prosperity and fairness set out in the 2003 and 2007 Energy White Papers, recognising that a fair and just transition to a low carbon economy demands action on a range of environmental and social factors, and that adaptation to unavoidable climate change will be necessary.**
- Minimise the gap between energy demand and sustainable supply. **In keeping with the 'energy hierarchy', the first priority is to reduce demand; followed by encouraging efficient energy production and consumption; then boosting renewables. Incentives and support measures should reflect these priorities.**
- Take a holistic approach to energy **which includes sustainable heat as well as electricity and transport. Energy is an inter-related system and policy should pay attention to all parts of the mix.**

Quantified objectives

We welcome the UK's role in securing EU-wide 2020 targets. We now recommend progressive national goals to deliver our contributions:

- A statutory national target on energy conservation **in support of the EU primary energy savings commitments of over 20% from projected business-as-usual levels by 2020.**
- Acceptance of a binding commitment and milestones for renewables in total energy consumption at the level of 15% proposed by the European Commission, with an internal aim to achieve 20% by 2020.
- Individual targets for renewables in the heat, transport and electricity sub-sectors and for microgeneration to meet this aim.

These targets demand an **urgent acceleration** of the rate of progress.

National action plan

The **long-term policy framework** must be established swiftly, to provide investment signals for businesses of all sizes to deliver major changes to our energy system. Consumers, industry, commerce and government should be rewarded for becoming 'part of the solution'.

The **coherent national plan for energy** must involve:

Energy saving

Reduced consumption is the most efficient solution to energy security, fuel poverty and climate change.

- Reduce consumption through energy saving. *Government should implement a package of measures including advice that encourage consumer and worker participation and delivers an absolute reduction in energy consumption in industry, transport and the home (whilst protecting vulnerable consumers).*
- Reduce wastage in energy production. *Government should incentivise the use of heat from existing thermal power plant and use regulation and standards to prohibit new thermal power stations that do not recover heat.*
- Reduce wastage in energy use. ***Government should introduce measures to** eliminate the most inefficient products from the market.*

Efficient resource utilisation

Energy efficiency also demands optimised usage of sustainable energy resources.

- Energy potential of biomass. ***Government should optimise energy use of biomass consistent with secure food provision and sound environmental management.***
- Secondary bioenergy resources. ***It should eliminate obstacles to the energy use of anaerobically digestible materials and combustible waste streams.***
- On-site renewables. ***Policies and incentives should ensure that renewable energy incident on buildings and sites will be utilised wherever it is practical and viable.***

The energy system, infrastructure and merchant energy production

Integrated community CHP systems and on-site energy deliver clean heat and electricity at the point of use, displacing inefficient production in and distribution from conventional stations, and increase public awareness catalysing behaviour change.

- Investment in decentralised energy systems. ***Government should ensure a fair value for distributed energy and provide regulatory and fiscal incentives for consumers, installers and network operators. Onshore and offshore renewable generation can also displace a significant proportion of conventional stations.***
- Strategic approach to energy transmission. ***A radical new approach is needed to facilitate and incentivise the transmission of renewable electricity, heat, gas and fuel from their future source locations through national and local networks.***

➢ Streamlined consenting process. *Government must ensure that changes to planning and consenting procedures actually deliver accelerated, dependable and fair consenting for sustainable energy projects.*

Sustainable energy in the built environment

The most efficient path to sustainable buildings is holistic building design in which passive building design, energy efficiency and sustainable energy provision are integral.

➢ **Rapid transition to** 'zero carbon' for all new buildings. *Government should extend into all sectors regulations to require new buildings to be 'zero carbon'.*

➢ Progressive conversion of existing buildings to 'carbon neutrality'. *It should also set targets, introduce measures and incentives to enable a reduction of 40% in overall carbon emissions from the existing stock by 2020.*

Sustainable energy in transport

- Realise the potential of alternative fuels, including biofuels. ***Government should enable the widest use of sustainable biofuels consistent with secure food provision and sound environmental management, and accelerate the development of other renewable fuels and drive systems.***
- Bring transport within energy policy measures. ***Government should subject all forms of transport to energy efficiency, demand reduction and sustainability requirements equivalent to the rest of the energy sector.***

Sustainable energy in business, agriculture and the countryside

A sustainable energy mix requires support for energy users as well as producers, and taking opportunities to integrate energy production into the value chain.

- Encourage self-generation. ***Users of all types should be encouraged to produce their own sustainable energy, where practical and viable, and should receive reward appropriate to the benefits of renewable decentralised production.***
- Integrated approach in land and agriculture. ***Policy alignment between the energy and rural areas should support approaches, such as anaerobic digestion, which integrate***

energy solutions with other processes, or use land for energy as well as agricultural or forestry production.

Incentives for users, investors and the industry

Contributions are required from all sectors. Support schemes and incentives need to reflect the varying needs of consumers, property-holders, vehicle operators, energy companies, retailers and other businesses. Consumers are vital to the success of Government's energy policies and without consumer support, major progress will be made much more difficult.

- Energy tariffs. ***A national accreditation scheme should ensure that renewable energy tariffs provide genuine incremental benefits and are presented with clear 'fuel mix' disclosure to provide a transparent incentive for consumers and business users. All tariff structures should reward energy conservation.***
- Coherent and appropriate incentives. ***Government will need a range of schemes to address the above-named sectors, designed and implemented to work together without conflict or perverse incentives.***
- Incentives for renewable heat and CHP. ***Renewable heat offers the potential for low cost emissions reductions, and should be supported by measures consistent with those for electricity and transport.***
- Long-term stability. ***The exit strategy for interim support measures must be defined early to ensure investment stability. This includes a transparent and robust long-term carbon market beyond existing emission trading schemes.***

Skills and value chain

Dynamic growth in the sustainable energy sector will create a multi-billion pound industry in the UK with corresponding opportunities in employment and wealth creation.

- Accelerate development of necessary learning and skills**. There is currently a UK skills shortage at all levels and across the sector. Home-grown skills are essential to meeting the 2020 commitments.**
- Encourage local content **as the UK market for sustainable energy systems develops. Increased domestic sourcing enhances security of supply.**

Leading by example

The UK should continue to press for international policies to enforce energy efficiency, boost renewables and eliminate barriers to sustainable energy.

- Champion sustainable energy at home and abroad. ***The Government must lead by example in its own procurement policies and infrastructure developments. Government should invest in a sustained programme of education to achieve cultural change in energy use.***
- Coherent government and regulation. ***Clear Cabinet responsibility needs to be defined for delivering the overall policy and for co-ordinating the various Government departments involved in delivery. A separate Department of Energy and Environment will probably be necessary. Primary duties of relevant regulators must be aligned with all national policy objectives.***

Individually and together these measures will enhance sustainability, boost UK industry and reduce fuel poverty. They improve energy security by reducing import dependence, maximising local resources and optimising the use of valuable fuels.

June 2008

This statement is supported by the organisations listed overleaf

Energy 2020 Manifesto

Signatories to the Energy 2020 Manifesto

30th July, 2008

Association for the Conservation of Energy – UK-ACE
Association for Environment Conscious Building – AECB
British Hydropower Association – BHA
Business Council for Sustainable Development – BCSD-UK
Chartered Institution of Building Services Engineers – CIBSE
Country Land and Business Association – CLA
Energy Institute – EI
Energy Saving Trust – EST
Environmental Services Association – ESA
European Marine Energy Centre – EMEC
Green Alliance
Home Grown Cereals Authority – HGCA
Institution of Civil Engineers – ICE
Institution of Mechanical Engineers – IMechE
Micropower Council
National Energy Action – NEA
National Farmers' Union – NFU
National Non-Food Crops Centre – NNFCC
New and Renewable Energy Centre – NaREC
Renewable Energy Association – REA
Royal Society for the Encouragement of Arts, Manufacturers & Commerce – RSA
Scottish Council for Development and Industry – SCDI
Scottish Renewables Forum – SRF
Town and Country Planning Association – TCPA
UK Green Building Council – UKGBC