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Renewable Energy Strategy

A response by
The Royal Institution of Chartered Surveyors (RICS)

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RICS (Royal Institution of Chartered Surveyors) is the leading organization of its kind in the world for professionals in **property, land, construction and related environmental issues**. RICS qualifies members and **guarantee standards** all over the globe.

Over 100 000 **RICS** members, who are Chartered Surveyors, operate out of 146 countries, supported by an extensive network of regional offices located in every continent around the world. Our European Office is based in Brussels, and our European work is supported by 19 national associations.

RICS represents the surveying profession with 17 different professional groups in the fields of Building Environment, Land and Property. The Professional Groups' primary role is to develop technical standards, generating professional guidance & information.

Energy is one of RICS priorities. The building sector, in the construction phase as well as through occupation, uses a large amount of Energy. While it is unavoidable that energy is used in this sector, waste of energy should be prevented and more efficient building(s) and usage should be encouraged. The use of energy efficient technologies, changing behaviour and an increased use of renewable energies are some of the tools available to lower energy use.

RICS published in 2009 its "Renewable Energy" information paper, and is currently drafting an information paper on "valuation of renewable energy installations". A new RICS standard has been set in 2011 for "options and leases for renewable energy installations". Its guidance notes (members only) include "energy strategies for rural businesses" and "energy from waste"

Chartered Surveyors play an essential role in the field of renewable energy: they are involved in various large and smaller developments, and their duties include providing independent advice to property, land owners and farmers with planning applications, environmental impact assessment, grant identification, negotiation of option agreements and lease terms, negotiation of terms for access agreements, compensation claims for neighbouring landowners, negotiation of terms for associated cables and infrastructure.

Section A : General Policy

A1 There is a definite need for post-2020 targets, not least because the operating life of projects currently in preparation, or even already commissioned, extends well beyond 2020, and the lack of post 2020-targets and a framework for achieving them causes uncertainty and means that there is no firm basis for the necessary long-term investment decisions.

As the potential for renewable energy supply varies between different sectors, it makes sense to consider sectoral targets. Furthermore there will be a need, if not immediate then in the foreseeable future, to set firm targets within individual member states, and this should be within the framework of a firm mandatory target at EU level. If the aims are not clear at EU level, it will be even more difficult to ensure that individual states set clear and binding targets.

In addition the measures which should be promoted and adopted to achieve targets in different sectors, for example support for technological development, will themselves be different, as will be environmental or security of supply implications of under or over-achievement relative to targets in specific sectors.

In summary, **RICS** believes that there is a case for a combination of EU and sectoral level targets.

A2 Other policy elements, apart from the setting of targets, undoubtedly have a significant role to play. However some of the suggested elements are only loosely defined, and are in any case hardly matters which the EU can influence directly, for example concerning availability of more sites for renewables or better financing possibilities.

Taking the example of financing possibilities, in the past a major driver for renewable investment at a national level has been the provision of tax incentive, however in the absence of greater tax harmonisation within the EU (an issue which obviously has implications going far beyond renewable energy), it will be difficult for the EU to take effective action to improve the financing framework. There may be scope to improve financial support for matters such as technological development, for example through pilot projects with EU support, however initiatives to encourage wider private initiatives are likely to be more productive, and at present these are more likely to be capable of implementation at individual state level.

Some of the other measures suggested deserve critical comment:

- Whether enhanced focus on R &D would be effective in bringing down costs depends not least on the technology and its stage of maturity. Costs of mature technologies are more likely to be reduced by larger scale production methods, competitive pressures or efficiency improvements, than by further R&D. It also needs to be recognised that cost reductions may come through sourcing from suppliers outside the EU, with lower cost structures, but to encourage this would have adverse effects on EU-based suppliers.

- Abolition of support mechanism or subsidies to other energy sources needs to be considered in a wider context. For example there is little merit in the EU reducing subsidies for indigenous coal production if the effect is not to encourage renewable energy production instead, but to

encourage increased import of coal from alternative, non-EU sources.

- Formal public procurement of renewable energy equipment is not necessarily helpful. For example, due to small variations in tower height, blade length, generator capacity, competition between wind turbines from different suppliers may not be effective; there may be only one ideal turbine for a specific project, and the effects of competition through public procurement mechanisms may be an illusion. Ironically public procurement rules may even hinder the entry of new, small suppliers to the market, because they are unable to resource the work necessary to bid, however they may be well able to supply to smaller projects. Larger projects are already likely to be subject to some form of competitive bidding, for smaller projects it is at best irrelevant and at worst unhelpful.

Section B: Financial support

B1 The need for financial support for renewables post-2020 will depend not only on the extent of their market penetration but on whether there is a level playing field by then which renders support unnecessary; if not it may be necessary to correct market distortions, but the aim should be to avoid such a situation. At the present time there is evidence of continuing policies at a national level, for example coal production subsidies or the sheltering of nuclear from decommissioning or insurance costs, which are not compatible with a level playing field approach.

It may still be necessary depending on the stage of maturity of newer technologies, not yet applied on a large, commercial scale, for example marine current generators, they may still require support to ensure their full application and their contribution to meeting post-2020 targets.

B2 Making support mechanisms more market oriented should mean that they are used to enhance the operating income, for example in the form of payments per MWh, rather than in the form of grants during the R&D phase, when they are likely to benefit the recipient alone, or during the implementation phase, to benefit only the specific project. Their coverage should be as wide as possible, not favouring individual projects or recipients, but being available in respect of all renewable energy generated according to the applicable criteria.

At such time as support is to be withdrawn, this should certainly be on phased basis, over a long-enough period to avoid penalising projects subject to short-term delays, for example due to bad weather during offshore installation, and to avoid unduly rapid changes in the investment framework.

B3 Whilst the principle of EU-wide benchmarking in setting support levels has an attraction, as already commented it is difficult to apply a harmonious approach against a background of significant variations in wider fiscal policy and practice within the EU, even with the narrower Euro zone.

Even more significant, the factors which determine renewable energy generation costs, such a wind or current speed, local availability of biomass, etc, vary so widely even within individual states, and certainly across the EU, that a benchmarking mechanism would need to be extremely complicated. The question of setting an appropriate level for green certificate entitlement (for example see the current debate on future ROC levels in UK) shows the difficulty of achieving a basis which does not under or over-reward.

B4 An alignment should be seen as a more long-term aim, the achievement of which is subject to factors mentioned in B3 above. In principle there may be similar considerations in relation to the sectors mentioned, electricity, heating, etc, although heating and cooling may be subject to more localised factors, whereas transport – by definition not bound so much by location – may be more open to a wider EU policy, given that the cost of energy for transport, much of it currently in the form of oil, is already determined in a much wider market.

B5 Given the significant potential for renewable energy transfers between EU states, and adjacent states, the 2nd and 3rd options are appropriate. This could accelerate the process of harmonisation of support systems, as well as promoting market and system optimisation across national and even EU boundaries to the mutual benefit of all involved parties.

The possibility of converging schemes, even across EU boundaries is demonstrated by the (proposed?) Swedish and Norwegian cooperation over a green certificate mechanism. Whilst we have no detailed proposal to offer, in principle a degree of convergence is unavoidable, and is already taking place indirectly, for example through the import/export of biomass or waste for waste to energy plants.

B6 The effects of support mechanisms on competition should not be overestimated. Mechanisms such as the ETS and other international certificate markets, the international trade in renewable feedstocks (biomass or waste), as mentioned above, are already tending to reduce market distortions, although their removal will be a much longer-term exercise.
In any case support mechanisms are by no means the only or major form of market distortion. The operating regimes for different types of plant, for example the operational inflexibility (and potentially even incompatibility) of nuclear, wind, tidal and other technologies may lead to operators of such plants enjoying advantages or suffering disadvantages compared with other technologies and their operators, on a scale potentially greater than the distortion due to financial support mechanisms, simply by them having a right (or need) to generate. However this is a necessary price of promoting low carbon generation.

As far as a comparison of financial support mechanisms is concerned, one-off capital grants are likely to be more distorting, and less related to actual long-term generating costs, than mechanisms related to MWh produced, either on the cost or revenue side.

Section C: Administrative Procedures

C1 RICS considers the most serious impediment to further growth to be administrative procedures associated with certification and licensing, particularly for small scale producers and consumers. Throughout Europe, domestic energy consumption accounts for over 50% of all energy consumed, if heat, electricity and transport are considered. Recognition that small scale systems do not require the same level of administrative procedure , as large scale, is important. This is especially true for the producers of sustainable biomass.

The EU system of Technical Standards is a useful, comprehensive and effective way of specification for Renewable Energy fuels and equipment. Training and qualifications are necessarily more country specific, dependent upon the education system, state of development in the country and natural resource.

C2 RICS considers the current policy response to be adequate and effective. While there is a considerable variation across member states, in the interpretation and implementation of Directives, we do not believe that an attempt to impose those regulations in a more draconian way would improve the uptake of Renewable Energy.

It is inevitable that different countries with diverse and dissimilar conditions will seek to develop policy initiatives in a way that suits their situation. In some countries carbon taxation has been effective in ensuring that the uptake of Renewable Energy has been in line with targets. In other countries this has been achieved using Obligations or Incentives. In many instances the stimulus for RE deployment has been fiscal and further intrusion into a Country's policy framework is unlikely to be successful.

Section D: Grid Integration of Electricity from renewable energy sources

D1 The first issue concerns the fact that each country may have separate emission reductions mechanisms and obligations under European and international agreements. If the European Emissions Trading scheme is operational in all countries by 2020, then the value of CO2 reductions will be recognised in a uniform way.

The second issue is associated with voltage security. A significant number of conventional units providing reactive power, and located close to the load centres will be replaced with renewable generation which is far from the load centre and which, in the case of wind will have limited capacity to provide reactive power. Where these issues are cross border there will be a need to establish a transparent cost sharing mechanism.

The third issue is the curtailment regime. It can be considered both an alternative to the extension or reinforcement of the grid and also to enable system balancing. The economic risks associated with curtailment and its yield losses will be an important factor influencing investment. Dedicated policy instruments will be required to make the risks manageable.

D2 Market mechanisms must facilitate the installation of complementary, flexible dispatchable, plant, so as to maintain adequate levels of system security. This can be difficult to ensure on an international basis.

Generators provide spinning or replacement reserve to enable the Transmission System Operator to provide short term balancing actions to adjust supply with demand. Generators will therefore need to earn additional revenues in different markets

The capacity factor (which describes the fraction of available time that the plant is generating electricity, weighted against its full capacity) for different types of generation affects dispatch. Combined Cycle Gas based Generation, CCGG, has a capacity factor of 70-80%, while conventional gas turbines can be as low as 10%. This is particularly difficult to manage where producers seek remuneration for providing reserve capacity outside their jurisdiction.

D3 There are several issues to consider with system integration. They include the ratio of predictability of different technologies, the flexibility of backup demand, the availability of demand response and the refinement of relatively new technologies such as ADGT to cope with production that is highly intermittent, e.g. wind.

A balanced renewable energy production portfolio, with biomass reserve, and schedulable tidal and solar is preferable to a predominance of wind. The greater the size of the geographical area in which production takes place, the greater is the reliability of wind generation at any one time.

Section E: Market Integration

E1 In general terms, the current ' electricity market' is 'short term', and does not send out the right price signals to provide sufficient certainty for investment in renewable or thermal projects, which typically have a 25 year life.

Society has made a decision that Renewable energy is something it wishes to see for environmental and social reasons, and because it is more expensive than traditional generation, we must accept that its delivery cannot be left to the market alone, as the market should not willingly choose renewable energy because of its inherent risk, and high capex / intermittent revenue generating model.

Consequently we feel the continued need for renewables energy to be subsidised through some form of process by member states, RO , FIT etc.

E2 If society wishes to decarbonise the electricity market, wind power must form a major part of the EU energy mix, and this will enviably increases the level of reserve margin required to ensure security of supply. This is likely to require a market intervention to secure the margin needed.

Improved interconnectivity between member states could help create more efficient pan European levels of reserve margin. However it is difficult to envisage any solution which does not involve some form of long term capacity reserve arrangement to deliver societies wishes.

This could be achieved through an auction process to ensure the most efficient reserve margin is provided, although this must be delivered on the back of long term contracts.

E3 A market mechanism where traditional and new renewable generation compete fairly needs to be in place, and a level playing field needs to be in place, e.g. introduction of a carbon floor price in UK alone distorts the market, or massively incentivising technology in the wrong place would cause difficulty in securing investment in other countries.

Markets will and should always favour established, lowest cost reliable generation. Whilst favouring established technology, there should be some incentivisation to bring forward new lower cost technologies, and CCS should be included in this area. A model for a pan European approach to renewables could be established, working on the principles of placing the most efficient technology in the most effective location. This could then result in solar PV being centred in southern Europe and Wind being placed in Northern Europe / UK.

The difficulty with pan European approach to the renewables market support could result in national differences creating market and investment distortions, e.g. difficulty in consenting and planning unfairly disadvantaging one country over another.

Countries should aim to deliver a mix of generating capacity of both new renewables (supported by level of subsidy) and traditional generating capacity, nuclear and fossil fuel with market driven elements, including a capacity mechanism for reserve generation. On this basis it could be that the level of subsidy for renewables should be set at the marginal cost for offshore wind, and that subsidy apply to all renewable energy types.

An EU developed energy policy based on market integration approach should include the following

- Basing efficient energy production in the best place across EU, subject to each country having to provide for diverse energy mix, security of supply and maximise member states natural resources
- Interconnectivity – development of a pan European smart grid
- Similar trading arrangements across Europe
- Degree of subsidy for renewables generation – with a pan European approach.
- Market arrangements need to give investor confidence for installing new renewables capacity
- Capacity mechanism to allow reserve generation capacity when renewables are unable to operate

Section F: Renewables in Heating and Cooling

F1 At present, the amount of energy associated with heating, from renewable sources, is considerably greater than the energy associated with cooling. This is because biomass is the largest source of renewable heat and traditionally biomass has not been used extensively for cooling. This situation is changing slightly, as biomass is now being used for cooling, through heat absorption. Traditionally cooling has been largely driven by electricity, so it is reasonable to assume that the percentage of renewable energy going into cooling will increase as the levels of renewable electricity rise across Europe.

Energy prices for fossil fuels will continue to rise. It is likely that renewable energy will therefore continue to be more competitive, as renewable energy costs are predicted to rise at a slower rate. The main barrier is likely to be the availability of fuel and the increasing amount of biomass that many countries will have to import. This is especially true of “middle Europe” where countries such as Belgium, UK, Netherlands, Ireland, and France, which have low levels of natural biomass resource, and access to port facilities, will continue to import biomass at an increasing rate.

F2 The pathways for the increased uptake of renewable energy are dependent upon the circumstances prevalent in each country. UK and Ireland will have a substantially larger proportion of renewable electricity coming from wind, tidal and wave energy. Spain, Italy, and Greece will derive increased amounts of heat from solar thermal and increase amounts of electricity from solar P.V. Geothermal heat is related to the geological conditions and is not country specific.

We consider that it is likely that there will be an increase in renewable energy production from all of the technologies and that no one technology will exert market dominance. It is therefore necessary to

ensure that the policy development across the EU is flexible enough to recognise this and not to incentivise some technologies in a way that will distort the market development of others.

F3 Increase use of renewable energy does not guarantee greater energy efficiency. It is important to recognise that energy efficiency should be the starting point and renewable energy solutions should follow. However, enhanced energy efficiency is not necessarily embedded within renewable energy solutions. Sustainability requirements will be built in to renewable energy proposals, particularly for biomass fuels. It is reasonable to assume that an energy efficiency requirement should also be included as a criterion in the development of heating and cooling.

Section G: Renewables in Transport

G1 The two main barriers to the uptake of renewable energy in transport are behavioural change and uncertainty.

At present, most of the development in the increased adoption of renewable fuels, in transport, is associated with electric passenger vehicles. The limitation in the capacity of batteries has restricted the distance that can be travelled between charges. Drivers are unwilling to change their driving behaviour to accommodate stops, en route, to facilitate charging, and are also reluctant to have to charge vehicles at night. The capacity of batteries is unlikely to improve significantly for at least another 5 years, so for drivers, outside urban environments, where travel distances are longer, there will have to be a significant change in driving behaviour if electric cars are to be widely adopted.

There is a separate issue associated with the fact that electric vehicles are only truly considered as renewable if the electricity, which powers them, is from renewable sources. However many countries do not plan to have levels of renewable electricity above 20% by 2020.

The second main barrier is uncertainty. Renewable transport fuels include bioethanol, biodiesel, hydrogen, biogas and electric. While the motor industry can already supply domestic vehicles, for all of these fuels, into the market now, many countries do not have clear policy on which fuels will be promoted within their jurisdiction. For instance, bioethanol and biodiesel are readily available in Sweden, but are not available in the UK. It is uncertain which fuels will be adopted in different regions of Europe and until that is resolved many drivers will not commit to buying what is perceived to be a vehicle running on an innovative fuel.

In the long term the availability of liquid biofuels is likely to be a barrier to further development of renewable transport, but this is not a major constraint now.

G2 The sectors with the most promise for increasing the share of renewable fuels are road and rail. Road vehicles, both for goods and for passengers are renewed more frequently than in the marine and aviation sectors. Therefore there is an opportunity to introduce new technologies in an incremental way more readily.

There are also issues associated with identifying the ownership of carbon emissions, and in carbon taxation, for modes of transport which operate internationally. If a Chinese owned ship, flying under a Liberian flag, leaves a European port, bound for Africa, what is the procedure for accounting for the carbon emissions? Renewables are driven primarily by emissions trading or by carbon taxation and it is

difficult to see how this situation can be resolved, without an all-embracing, international agreement. The issues are administrative and legal, not technical.

Section H: Sustainability

H1

RICS facilitated for the UN FAO in London a private sector consultation in January 2010 to review FAO's draft global voluntary guidelines on responsible governance of land tenure

Increased competition occurs as new lands are placed under cultivation to meet the demands for expanded supplies of agricultural products, including biofuels, and increased food production in response to high food prices. Such competition may foster social exclusion with potentially destabilizing consequences when the rich are able to acquire land and other natural resources at the expense of the poor.

RICS generally favours criteria as tight as possible. The level of fuel consumption in the EU can not be maintained at the expense of the developing world, where effectively rain-rich areas are being given over to bio-fuel crops thus further, undermining food security and reducing the scope of countries supporting themselves in terms of home-grown food supplies, increasing the need for further imports and by doing so adding to overall debts.

Furthermore, studies show that Biofuels have the capacity to pollute more than crude oil when the impact on Indirect Land Use is taken into account.

Section I: Regional and International dimensions

I1 Most recent studies found that 10 out of 27 EU Member States are likely to exceed their national targets for renewable energy, with a further 12 set to meet their goals domestically. Only five Member States are currently expected not to meet their target with domestic sources only. The net result of Member States' forecasts for 2020 renewable energy consumption is that the EU should exceed its 20% target by over 0.3 percentage points.

The uptake of Cooperation Mechanisms has been slow, due to the time needed to understand the functioning of these schemes and to determine the simplest administrative and legal instruments for statistical transfers. Given the short time period of availability for these mechanisms, only small quantities could be covered by agreements between Member States. Solutions should be kept as simple as possible.

Two years after the enactment of the directive, it is still difficult to assess how much interest there will be in employing the cooperation mechanisms.

I2 It needs to be recognised that cost reductions may come through sourcing from suppliers outside the EU, with lower cost structures, but to encourage this would have adverse effects on EU-based suppliers.

RICS would recommend focusing on two geographical clusters: northern Europe (cooperation with

Norway) and Southern Mediterranean.

I3 Given the high potential of solar energy in the south Mediterranean, it is important to invest in reinforcing the energy grid in Spain, Italy and Greece. However, RICS would consider investment in the North Sea Grid a priority and a more sensible option for the EU energy security.

I4 RICS support agreements between the EU and third countries.

I5 There are two major initiatives under way at the moment which relate to renewable energy from North Africa. One is Dertecii and the other Medgrid.

Desertec Industry Initiative is a German led private consortium proposing to generate up to 15% of Europes electricity from both PV and Wind arrays situated in North Africa. Medgrid is a French initiative to extend the European super grid to all Mediterranean countries.

Both have the support of the EU and seem to be complimentary to Europe's renewable energy strategy. **RICS** supports these initiatives, but generally fears that **relying too much on generation coming from outside the EU may not provide energy security.**

I6 In **RICS** opinion, Cooperation Mechanisms and joint projects are most likely to happen in the Offshore Wind Sector. Initiatives such as the North Sea Countries Offshore Grid initiative ((which consists of 9 EU Member States and Norway and sets out a programme of work to facilitate the development of offshore wind resources in the region) prove that interest exists and the future offshore grid cooperation between Scotland, Northern Ireland and Ireland is a positive step.

Wave energy systems, especially in Ireland of Scotland have an amazing potential within 8 to 10 years. The sole potential of the West coast of Ireland represents 20 times the total energy requirements of the country. Cooperation Mechanisms to transfer the energy surplus would be especially relevant, should this type of energy be developed to provide cost-effective electricity.

RICS members have for example been involved with the grid study for the "All Island" project between the British Isles, the Channel Island and Ireland. A single electricity market was created between the republic of Ireland and Northern-Ireland, and the mechanism proved very successful: only minor infrastructure issues (reinforcing of the grid) were registered.

RICS is very supportive of reinforcing the European Grid and of creating a Pan European Smart Grid.

Section J : Technology development

J1 In general, to ensure a cost-competitive market roll out of renewable energy, it is important to continue the development of a thriving green technology industry building upon the advances that have been achieved over the last ten to fifteen years. Incentives should remain in place to encourage new entrants. It will then be desirable for companies in the market to make further advances in technology to maintain their competiveness.

The key challenge to be addressed by research and innovation within the current suite of renewable technologies will be to continue promoting an environment whereupon sustained investment is made to achieve the full potential for each technology. In particular:

- Financial incentives should be considered to encourage further innovation and increased technology efficiencies.

- Sharing of information and technological advances should be encouraged
- Direct research should be encouraged into areas where there are negative public perceptions, for instance, look at turbine blade and generator design to reduce noise impact for on-shore wind farms.

- System integration – development of facilities should be encouraged where the Grid system can easily accommodate new supplies.

- In case of bio-energy, seek to promote maximum efficiencies of technology aligned with long term feedstock development.

J2

- Financial incentives should be maintained, to justify the use of unfamiliar new technologies. This should encourage capital investment to convert new ideas into final products and take them to a commercial scale.

- Investment in education and research. Channel funding via government programmes for research, development and demonstration into commercialization. Specific engineering courses directed towards green energy technology, sponsored by the industry, should be introduced. This will ensure that the UK becomes a leader in research and innovation.

- Demand policies are needed to encourage renewable innovation. It is important to provide a consistent and long term market. Government preferred technology choice would provide more certainty.

- Investors perceive that FIT is the most effective renewable energy policy which promotes private investment

J3 It is considered that Tidal and Wave technologies should be given priority bearing in mind the significant resources that can be tapped around UK shores. In addition ACT technologies which maximize the conversion of energy from waste and biomass should be encouraged. For instance, it is possible that small scale (80k – 150k tpa) pyrolysis facilities could be introduced to the market which could be installed within the major conurbations. This will encourage renewable energy production at point of demand, meeting the proximity principle

J4 In general existing fiscal measures have been successful in bringing forward renewable energy technology advancement. However the UK has fallen behind other Countries and more needs to be done to bring investment into the UK. Future financial incentives must be transparent and fixed for the long term to allow continued investment in technology development.

J5 It is considered that results and deadlines, or targets by certain dates are of some assistance. This can be demonstrated by those results and deadlines imposed by the Landfill Directive which, together with fiscal incentives (landfill tax) brought about a dramatic shift within the waste management industry. Any assistance, as mentioned in 4 above, should be transparent and long term, to match timescales for introducing new technologies and bringing them to commercial scale.