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Public Consultation on the Evaluation and Revision of the Action Plan for Energy Efficiency [COM (2006) 545]

Consultation Response by Micropower Europe

Profile of Micropower Europe

Micropower Europe is an organisation open to all companies and associations with an interest in promoting the sustainable energy generating technologies for the built environment collectively known as microgeneration.

Microgeneration is the subset of distributed energy that involves the low or zero carbon generation of power or heat in, on or adjacent to buildings. In other words, it is the family of customer-facing technologies that supply sustainable energy at the point of demand. The main microgeneration technologies are heat pumps, solar photovoltaics, solar thermal, small-wind, microCHP and biomass boilers. Provided they are correctly installed in the right location, these technologies have huge potential to reduce energy consumption both by reducing a buildings' reliance on centralized grid supply and by improving the building occupiers' energy awareness.

Micropower Europe views microgeneration as a logical and very beneficial extension of energy saving in the built environment. In order to reduce energy consumption in new and existing buildings, all relevant technical, behavioural and economic solutions must be made available to policymakers. This necessarily includes measures to reduce energy use and generate energy on-site.

Micropower Europe advocates an approach that puts the most cost-effective energy efficiency measures like better insulation, smart metering and policies aimed at stimulating energy conscious behaviour first. The level of ambition of EU policies is such that these "conventional" measures are necessary but not sufficient and need to be accompanied by sustainable energy systems. For example, applying insulation is indispensable but will undoubtedly run into diminishing returns as the most amenable building stock is addressed first. Smart meters, by their very nature, have a large but fixed total potential penetration (usually one per building.) Similarly, experience and studies suggest that policies aimed at stimulating energy efficient behaviour, including publicly funded information campaigns, have only limited effect and also run into diminishing returns and limitations, especially when aimed at changing the behaviour of private individuals.

Micropower Europe believes that there is a convincing case to stimulate both energy efficiency and microgeneration and indeed to see both sectors as two sides of the same coin. The optimal outcome is one where each occupant is given the right incentives to adopt the measures that are right for the building in question, ranging from the simplest energy efficiency measure to the most sophisticated microgeneration product. What the "right measures" are will in turn depend on a number of factors: The climate and building characteristics on the one hand and the occupiers' budget and personal preferences on the other.

This means that the optimal solution for building stock involves microgeneration and conventional energy efficiency measures. Clearly, this has benefits beyond reducing energy consumption in buildings. It will also contribute significantly to renewable energy targets, reduced green house gas emissions, industrial development and improved energy security.

1. General questions

1.1 The Action Plan for Energy Efficiency of 2006 identified 6 key areas and proposed 10 priority actions (out of a total of 85 actions and measures). Which of the actions and measures of the 2006 EEAP should be continued / redefined / discontinued, and why? (max. 4000 characters) (optional)

PRIORITY ACTION 2 can be refined so that it pays attention to the crucial contribution microgeneration technologies can make to energy efficiency in the built environment. If the number of low and zero energy buildings is to grow substantially, microgeneration is a pillar to a strategy that puts the most cost-effective solutions first. The provision of a coherent framework for integrating these technologies into the built environment would create a quick, cost-effective but very significant improvement to buildings, in carbon performance, energy consumption and renewable energy integration. In addition this would sustain the competitive EU market for energy efficiency and microgeneration related products and services, while ensuring increased security of supply from on-site generation. At present, there are a number of EU legislative areas that affect the prospects of an integrated microgeneration sector. The EEAP presents a timely opportunity to commit to a coherent framework. Micropower Europe recommends a number of considerations (see answer 3.1) and would welcome the following commitment in the revised action 2: *“For all buildings, the Commission will develop by the end of 2011 a strategy for microgeneration technologies in dialogue with Member States and key stakeholders for more widespread deployment of these low and zero carbon technologies by 2020.”*

PRIORITY ACTION 7: At present, a highly damaging distortion exists that allows Member States to subsidise conventional energy usage with reduced rate VAT at the expense of energy efficiency and microgeneration. Abolishing this distortion would reduce energy demand by 1% across the EU, and have no effect on overall tax revenue [1]. To optimise, Member States must be allowed to apply advantageous VAT rates for energy efficiency measures and microgeneration installations: a sound, simple-to-implement policy that will help achieve the EU’s 20-20-20 targets. Please refer to answer 2.5 for the distinct advantages. Micropower Europe would support the following commitment in the revised action 7: *“The Commission will review the Council Directive on VAT 2006 to remove the widespread tax distortion which encourages conventional energy use at the expense of energy efficiency and microgeneration. The Commission will review the costs and benefits of allowing the application of reduced rate VAT on the installation and supply of energy efficiency measures and microgeneration installations.”*

PRIORITY ACTION 8: EEAP 2006 does not fully reflect the potential of microgeneration installations to raise energy efficiency awareness among private citizens. Research shows that nearly 90% of householders reduce energy consumption after installing microgeneration and that the ability of energy efficient programmes to affect behaviour is limited [2]. EEAP 2006 overlooks that if EU energy goals are to be achieved, all EU citizens must change their energy consumption behaviour. A significant double-dividend from microgeneration

installations has been observed: More microgeneration ensures more sustainable energy generation and improved energy efficiency awareness, in a way that other policy measures struggle to bring about [3,4]. Micropower Europe would support the following commitment to the revised action 8: *“The Commission will investigate how to raise energy efficiency awareness among the general public by utilising the proven capacity of microgeneration technologies to improve energy conscious behaviour among non-expert energy users.”*

[1] Copenhagen Economics, Reduced Rate VAT for Environmentally Friendly Products, 12/08, pp9-31

[2] Growth Potential for Microgeneration, Element Energy/UK Government, 05

[3] FP7, Changing Behaviour. From Sociotechnical Theory to Sociotechnical Practice: An Action Research Project. P.2

[4] FP7, Changing Behaviour. Creating Lasting Change in Energy Use Patterns through Improved User Involvement P.1

1.2 Which new challenges have emerged since 2006 and should be addressed in the new Action Plan for Energy Efficiency? (max. 4000 characters) (optional)

The financial downturn and economic crisis following the original Action Plan for Energy Efficiency in 2006 have left homeowners with limited access to capital and reduced disposable income. This has also led to the need for more investment, especially in job-creation opportunities and technologies that will provide for a European economy better equipped for the future.

Concerns over security of energy supplies, the ongoing potential for further gas crises, and finance-led (“speculative”) bubbles on the energy commodity markets have also changed the energy landscape since 2006. This has increased the value placed on limiting price volatility by end users, and has created economic benefits to increased energy efficiency and adoption of microgeneration in the built environment.

In this context, it is important that the EU provides strategic leadership and helps consumers and investors to make profitable investments that will better equip the EU to meet future economic and environmental challenges.

The impact assessment of the recast EPBD shows that savings and investment stimulated by focusing on energy efficiency in the built environment are of vital importance. For example, the new Directive could stimulate €8 billion a year in investment and ultimately save an annual € 25 billion simply by abolishing the “1,000m² threshold” to which the national/regional energy performance requirements apply. The directive as a whole could stimulate the creation of 450,000 new jobs directly, along with an emissions cut of 5-6% and carbon dioxide by 4-5% by 2020 [5].

Microgeneration has a significant role to play in energy efficiency savings and investment in new technologies, thereby creating new manufacturing opportunities and skilled installation jobs. For example, the commencement of manufacturing of the WhisperGen microCHP unit in Spain has led to the creation of new “green collar” jobs during a particularly severe national downturn. Similarly, Mitsubishi Electric is currently investing in production of their Ecodan air source heat pump

unit at a manufacturing facility in the United Kingdom. In addition there are substantial indirect benefits in the creation of new installation and servicing jobs.

Separately, microgeneration can also lead to increased network efficiency through decentralized energy production at the point of demand. Research indicates that networks can receive high levels of microgeneration penetration without requiring upgrades; indeed microgeneration can provide substantial benefits thus deferring expensive network reinforcement [6, 7].

[5] “Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the energy performance of buildings (recast)”, page 4 and 5.

[6] “Integrating Micro-Generation into Distribution Systems” by Infield and Li, 2008

[7] “Results” EU DEEP, FP6 Project <http://www.eu-deep.com/index.php?id=449>

2. Specific questions

2.1 **The existing Energy Performance of Buildings Directive (2002/91/EC) and its recast, as well as other relevant legal acts, go a long way for introducing ambitious but realizable energy performance requirements for buildings and increase consumers' awareness. However, much more can be done. How do you assess the need for moving towards a requirement that all new buildings have low or zero energy consumption and carbon emissions after certain date? (Max. 4000 characters) (optional)**

Yes, Micropower Europe agrees that the EPBD can go further by introducing a component that encourages, or at least enables, Member States to set energy performance requirements with minimum thresholds for new and refurbished buildings that do both of the following:

1. Reduce energy consumption and carbon emissions
2. Increase renewables uptake.

Given the EU’s energy challenges, minimum energy performance requirements for new buildings and for buildings undergoing major renovations, emanating from the EPBD, should be firmly in line with the underlying 20-20-20 targets. The setting of minimum renewables requirements will in any case automatically generate a financial incentive to invest in energy saving measures as energy efficiency is stimulated by a relatively more expensive energy source. This approach thus creates a double benefit – investment in renewables and energy saving, and reflects the following principle set out in the Renewable Energy Directive:

“Energy efficiency and energy saving policies are some of the most effective methods by which Member States can increase the percentage share of energy from renewable sources, and Member States will thus more easily achieve the overall national and transport targets for energy from renewable sources laid down by this Directive.” [8]

At the same time, it is important that Member States remain free to stimulate the full range of carbon-saving products, including those based on new technology, through the minimum energy performance requirements of the EPBD, in order to better reflect EU regional variation in climate, building stock characteristics and economic considerations.

[8] L140/18. Recital 17 of DIRECTIVE 2009/28/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC.

How do you assess the need for introducing an EU level measures concerning training of architects, builders and installers? (max. 4000 characters) (optional)

Optimal outcomes in the built environment will only be possible if builders, installation companies and architects are provided with all the relevant training and information they need to make an optimal decision about which solution is most suitable for the building in question. Unless training is addressed and offered in a timely fashion, it is widely feared that it will be a key barrier to further development of the microgeneration sector and the improvement of energy performance in the built environment.

- 2.2 Sustainable transport and energy consumption of cars is currently addressed in the Greening transport package (COM(2008)433), the Regulation on Emission performance standards for new passenger cars (COM(2007)0856), the proposed Directive on labelling of tyres (COM(2008)0779), the proposal on greening car taxation (COM(2005)261) and the 'Green Cars' initiative. The Commission is also working on a proposal on light commercial vehicles and a revision of CO2/cars labelling. Do you consider that additional measures at EU level need to be undertaken? (compulsory)**

No opinion.

- 2.3 The Eco-Design (2005/32/EC) and Energy Labelling (92/75/EEC) framework Directives are significant steps as regard to product policy. A number of implementing measures have been already or are soon to be adopted and the ongoing amendments of the two Directives provide for their more ambitious and wider application. Do you consider that additional measures can be taken forward in order to increase the impact of these instruments? (compulsory)**

Yes, Micropower Europe believes that overall the Eco-Design and Energy Labelling framework Directives are significant steps towards energy efficiency in the EU, and welcomes the ambition shown by the European Commission in this area. Now is a timely opportunity to debate the implementation and end goal of these initiatives.

Optimal outcomes in the built environment will only be possible if building occupiers and installation companies (and architects) are provided with all the relevant information they need to make an optimal decision about which solution is most suitable for the building in question. At the same time, minimum standards and benchmarks should be set for all Energy Using Products (EUPs), and widened

to Energy-Related Products (ERPs), in a way that supports the European Union's climate change and energy policies from a systems perspective. Micropower Europe recommends that the responsibility for the specification, labelling and commissioning of the system lies with those actors' best placed to do so. This is likely to be in most cases the installer, or system supplier, and not the manufacturer of individual components. In line with this, allowing the use of existing controls systems, provided they meet minimum requirements rather than manufacturer specified products, will simplify consumer controls.

In particular, Micropower Europe would welcome a commitment to the development of initiatives under the two framework Directives enabling building occupiers to optimise their decision-making by providing:

1. Access to all potentially helpful products operating under harmonised ecodesign requirements;
2. meaningful and user-friendly information, control systems and labelling for all potentially helpful products that allow comparisons between products;
3. implementation which follows current practice, where installers provide the knowledge and relationship with the consumer and;
4. utilisation of separate efficiency labels for different fuel types to allow ease of comparison.

2.4 Lack of access to appropriate financing is an important bottleneck for making a real step forward in our ambitions on energy saving. Innovative financing instruments are now being developed by institutions such as EIB, EBRD, national promotional banks and private banks in particular in association with the Covenant of Majors initiative. Demonstration projects of the application of energy efficient technologies in a competitive manner, e.g. 'smart cities', could also be considered. Do you think other financing measures at EU level are needed? (compulsory)

Yes, many useful initiatives exist but finance provision to householders and other occupiers of buildings for energy efficiency investments remains a poorly understood and overlooked area. For example, recently the European Investment Bank (EIB) approved a €250 million loan to Nordic utility Fortum for energy efficiency projects in Finland, Poland and Sweden. Fortum will use the EIB loan to invest in the construction of a combined heat and power (CHP) plant in Finland and in a coal and biomass-fired plant in Poland. Micropower Europe welcomes projects like this but would like to see parts of these funds offered to credit-constrained individual occupiers of buildings. This would be hugely beneficial for energy saving as up-front capital is a key barrier to microgeneration and energy efficiency investment. Householders take a short term view on capital, and tend to discount future energy savings far more strongly than the private sector and society as a whole, creating a major potential efficiency gain if financing for householders were offered in a way that would lead to widespread take-up [9].

For example, at present one can imagine a typical EU household that can invest €5,000 in energy efficiency and microgeneration, saving €500 a year subsequently. In theory, this household should be able to borrow €5,000 and make a profit after just over ten years (depending on the interest rate charged on the loan) thereby

unlocking the value of energy efficient savings. However, experience suggests that householders, as distinct from other economic actors, are particularly difficult to persuade to take up this type of offerings. Clearly, this market failure comes at a significant cost. In the example above, an energy efficient investment worth €5,000 with accompanying economic and environmental benefits is lost to society as a whole. A sale is lost to the energy efficiency industry; a profitable lending opportunity is lost to the finance sector and a financial saving of €500 a year is lost to the household.

More work is needed to understand exactly what the offering to the consumer needs to be to ensure wider take-up, and Micropower Europe would welcome more research into consumer preferences and how energy efficiency funds can be better designed to fully unlock the massive potential for investment by individual citizens.

[9] See for example, the Growth Potential for Microgeneration in England, Wales and Scotland which found a severe discount rate among consumers for any revenue stream beyond 3-5 years (e.g. page 13). The consumer analysis found that owner occupiers discounted permanent future savings by a ratio of 2.95: 1 (page 31). In other words, a householder would only be willing to spend just €295 upfront to create permanent annual savings of €100. This is a very strong intertemporal preference for immediate financial reward in return for future savings.

2.5 Well targeted fiscal incentives could be a driver for energy efficiency investments and innovation. The EU has already taken measures to make it easy for Member States to allow for more advantageous VAT rates for some labour-intensive services, such as renovation and repairing of private dwellings. Do you consider that additional measures at EU level need to be undertaken to shape consumer choices? (compulsory)

Yes, at present, a highly damaging distortion exists that allows Member States to subsidise conventional energy usage with reduced rate VAT at the expense of energy efficiency and microgeneration. Currently 14 Member States cut VAT on supplied heat and electricity encouraging greater energy use. Abolishing this distortion would reduce energy consumption by 1% across the EU, have no effect on overall tax revenue but may require intervention to counteract the adverse impact on income distribution [10].

A recent study into the application of reduced rate VAT on “environmentally friendly products” raised a number of concerns about applying reduced rate VAT on consumer appliances but, importantly, none of these concerns are relevant to microgeneration [11]. Please refer to answer 3.1 for details.

Reduced rate VAT is a highly effective and manageable fiscal support scheme, especially compared with direct subsidy schemes. Reduced rate VAT has three main advantages: 1) No administrative burden is imposed on consumers. 2) Security of investment remains for the microgeneration sector and 3) it does not carry the same risk of reputational damage to the green agenda as subsidy schemes do.

ESTIFs recent report on the effect of different financial incentive schemes identified a number of different factors that influence the success of specific support schemes [12]. A key conclusion outlined that “complicated and slow administration

procedures do not work if the consumer needs a new heating/cooling system immediately. The “ease of use” for the consumer is also a very strong advantage of VAT reductions, tax credits and allowances. The consumer does not have to wait for a grant approval before deciding whether to purchase microgeneration equipment, nor tackle cumbersome application paperwork, which is more efficiently taken on by the installation company. Grant programmes can be very effective in pump-priming an industry but cannot, by their very nature, create a sustained incentive. The “stop-start” nature of the UK’s Low Carbon Buildings Programme illustrates the limitations of direct subsidies. The paperwork deterred mainstream householders and only very determined consumers benefited. At the same time, the uncertainty created by the budgetary restrictions on the programme deterred long-term industry investment and planning.

The policy design advantage of a VAT reduction over other tax measures is the certainty and sustained nature of the incentive, which creates goodwill among citizens and investor certainty for industry. The recently introduced cap by the Italian government on the total preparedness for the state to pay out on a 55% tax rebate for energy savings measures means that consumers who had budgeted for the rebate may now not receive it. A VAT reduction would have avoided this problem by creating more rigorous parameters that cannot be changed opportunistically after they have been introduced. This signals a credible commitment to support microgeneration and energy efficiency and allows planning to be done accordingly.

Micropower Europe has the following dual policy recommendation on VAT:

1. Explicit recognition in the VAT Directive that Member States are allowed to apply reduced rates on energy efficiency and microgeneration installations.
2. A policy principle that ensures that where Member States apply reduced rate VAT to conventional energy, they must automatically apply it to energy efficiency and microgeneration too.

[10] Copenhagen Economics, Reduced Rate VAT for Environmentally Friendly Products, 12/08, pp.9-31.

[11] Copenhagen Economics, 12/08. For a fuller treatment of arguments concerning reduced rate VAT and microgeneration see Micropower Europe’s document “Evidence on Reduced Rate VAT and Microgeneration”, 15/12/08.

[12] Financial Incentives: Guidelines on best practice and avoidable problems. Key Issues for Renewable Heat in Europe (K4RES-H) Financial Incentives for Solar Thermal-WP3, Task3.4. Contract EIE/04/204/S07.38607

2.6 Education and training on energy efficiency are vital ingredient of a successful energy efficiency policy. These were already mentioned above regarding buildings but the challenge is much broader. Do you consider that measures/actions at EU level to catalyze training at school and university level should be undertaken? (compulsory)

Yes, all measures that improve energy efficiency awareness and help build delivery capacity in the energy efficiency sector are to be welcomed. Compulsory and harmonised additional training modules for professionals in the built environment sector would be particularly beneficial. This is because a skills mismatch in the installer base could become a major bottleneck for the future of the energy efficiency and microgeneration sector for the built environment.

The creation of such provisions could be based on the principles in the Renewable

Energy Directive Article 14(3) and Annex IV (“Certification of Installers”) by expanding them to cover installer certification for energy efficiency installations more broadly. Article 14(3) and Annex IV will lead to harmonised installer standards for small-scale installations from renewable energy sources solar, heat pumps and biomass. This will bring significant benefits in terms of economies of scale, competition and robust installer certification standards. With this in mind, the principles in R E D Article 14(3) and Annex IV can be replicated for the entire built environment sector, especially other microgeneration technologies like microCHP and small wind.

Unless it is addressed in a timely fashion, education and training in energy efficiency and microgeneration is widely feared as a key potential barrier to further development for improving energy performance in the built environment. Again, the example of the Renewable Energy Directive Annex IV is instructive. Annex IV 6-10 sets out “Guidelines” on how to improve awareness among installers. Strengthening and widening these to cover the built environment and all microgeneration technologies would increase installer awareness. This would be particularly helpful as the main point of contact for consumers opting for energy efficiency installations is a professionally trained installer. By strengthening and widening Annex IV 6-10, installers will be able to offer advice at a crucial point in the decision-making process, thereby significantly boosting energy efficiency in the built environment.

2.7 Awareness of final consumers on energy savings possibilities and their benefits is still low. This in particular concerns domestic consumers and SMEs. Some actions to target different groups are already undertaken at national and EU level. For example, the Sustainable Energy Europe Campaign is focusing on grouping social stakeholders and market actors to undertake joint action. Do you think that further communication action at EU level is needed? (compulsory)

Yes, although the Sustainable Energy Europe Campaign has made a highly valued contribution, Micropower Europe would welcome further action in the following two areas:

1. Dissemination of material to the private sector (the built environment industry and the financial sector) as to how it can best address the failure by householders to make profitable energy efficiency investments, thereby unlocking significant commercial opportunities. A focus on the profitability of the investments will ensure more interest in domestic consumers and SMEs from the private sector, with the added benefit of stimulating economic recovery.
2. Further investigation to understand how EU consumers view sustainable energy offerings, including the promotion of realistic research on consumer preferences with regard to the technology performance and price included in the offering.

2.8 Furthermore, small and medium size companies (SMEs) are the backbone of EU's economy as they make up more than 99% of all firms and employ 67% of

the EU's workforce but may need more support for implementing energy saving measures. Do you consider that specific measures to target SMEs are necessary? (compulsory)

Yes, SMEs stand to benefit hugely from both energy efficiency itself and investment in energy efficiency, which aids competitiveness and creates commercial opportunities respectively.

2.9 Public sector should lead by providing best practice examples. Positive progresses have been made under the voluntary Green public procurement policy and the proposals for mandatory procurement of energy efficient products in the framework of the recast of the Energy Labelling Directive. The leading role of public authorities has also been emphasized under the recast of Energy Performance of Buildings Directive proposal. Do you consider that further actions at EU level should be undertaken? (compulsory)

Yes, Micropower Europe supports the idea that the EPBD should include an additional requirement that public authorities must implement the recommendations in Energy Performance Certificates within their validity period, in order to ensure that they lead by example.

2.10 The role of energy utilities can be substantial but at present they have insufficiently developed a market for energy efficiency services. Ways to create adequate framework conditions for this market to take-up in liberalized electricity and natural gas markets should be sought, possibly in cooperation with the Regulators. Do you consider that actions at EU level should be undertaken? (compulsory)

Yes, energy utilities are a key stakeholder in this matter because of their resources, expertise and ability to invest in long-term solutions. Utilities will respond positively to the right regulatory framework. Given that the regulation of liberalised electricity and natural gas markets was created at EU level, it is logical that in support, an overarching energy efficiency services framework is also created at EU level. This would be beneficial for two main reasons:

1. It would allow for better policy design. For example, at present, the EU's liberalization of consumer markets gives consumers the right to switch energy suppliers every three weeks. It is not clear whether this acts as a barrier to investment in microgeneration and should therefore be explored further.
2. It would create the possibility of integrating and harmonizing the energy efficiency services market. Measures including harmonized installer standards and EU-wide energy savings certificate trading can significantly help the energy efficiency and microgeneration sector develop, if designed and implemented in the right way.

2.11 Energy efficiency offers significant market opportunities. Do you consider that specific measures at EU level should be adopted to provide incentives for

companies to enter these markets, in particularly as regards SMEs? (compulsory)

Yes, energy efficiency and microgeneration is a growth area requiring new market entrants and new investment.

2.12 In relation to the above question do you consider that there is a need for the introduction of a EU-wide White Certificate scheme? (optional)

Yes, White Certificates can form the foundation of an EU energy efficiency services market and if correctly designed and implemented, it can provide the basis for an EU wide microgeneration market.

In order not to stifle innovation, it is important that there are ways for new technological solutions, including microgeneration in particular, to be entered into the methodology that would eventually be adopted for verifying the energy saving certified in the White Certificates.

In other words, to fully generate dynamic gains from innovation, the verification body that issues White Certificates needs to be equipped with the ability to measure energy savings from microgeneration

2.13 The Directive on energy end-use efficiency and energy services (2006/32/EC) already provides for national indicative energy savings target which differs from the ones for renewables and for the greenhouse gas emissions. Giving the increasing priority for ensuring that investment in energy consumption reduction are made in all Member States do you consider that a move towards binding targets is needed? (compulsory)

Yes, energy reduction as a policy goal deserves at least parity with renewable and green house gas emissions targets. In virtually all contexts, the most sustainable energy is saved energy and Micropower Europe advocates solutions for the built environment that puts energy-saving measures first.

Experience with renewable energy and green house gas emissions targets suggests that binding targets are a highly effective way to stimulate action at Member State level, to encourage the sharing of best practice between Member States, and to provide a degree of certainty for investment. Measurement and verification of energy savings is an essential component of any initiative in this area.

2.14 Measurement and verification of energy savings is essential aspect for monitoring the results of any measures introduced at national and EU level. Although some targeted measures are being implemented, do you consider that more systematic and harmonized approach at EU level is needed? (compulsory)

Yes, a more systematic and harmonized approach is required to ensure that the desired outcomes occur and to ensure that innovation is not stifled.

It is of crucial importance that the measurement and verification of energy savings derived from microgeneration is included in any initiative to measure and verify energy savings in buildings.

The performance of sustainable energy systems in buildings is a crucial parameter in measuring and verifying the energy performance of buildings.

2.15 Energy efficiency should become a vector of international co-operation and a subject of international financing programmes, in particular regarding EU neighbouring countries. Do you agree with statement? (compulsory)

No opinion.

3. Other remarks

3.1 Please add your additional remarks in the section below. (max. 5000 characters)

A. In the context of answer 1.1, the EEAP presents a timely opportunity to commit to a coherent framework, which may consider:

1. Should the Construction Products Directive be adapted to provide the framework for a single European market for microgeneration products, to reflect microgeneration products' inevitable evolution into mainstream construction products?
2. As reduced rate VAT has proved to be one of the most effective ways of stimulating growth in microgeneration products [13], does the VAT Directive need to be adapted to make it easier for Member States to apply reduced rate VAT to energy efficiency and microgeneration?
3. Do the initiatives on Energy Labelling and Energy Performance Certificates need to ensure an outcome which enables building occupiers to make informed choices, leading to optimal results in the built environment?
4. Although preliminary research notes the benefits of increased distributed generation [14], are additional measures and research needed to take into account the effects of widespread microgeneration adoption on energy networks?
5. Does the three-week switching rule in the Third Liberalisation package deprive the industry of providing credit-constrained citizens with the right financing incentives to install microgeneration?
6. Can the principles for mutual recognition of installer standards set out in the Renewable Energy Directive be widened to create a single European installer market for a wider range of products, thus enhancing competition while protecting consumers?

[13] The UK is widely believed to be the only Member State that applies reduced rate VAT to all microgeneration products. See *The Growth Potential for Microgeneration in England, Wales and Scotland*, Element Energy Report, p. 5.

[14] For example, 'Integrating Micro-Generation into Distribution Systems' by Infield and Li, 2008

B. In the context of answer 2.5, please find below a summary as to why the concerns over reduced rate VAT do not apply to microgeneration:

One such concern, the so-called rebound effect does not apply to microgeneration for two main reasons: 1) The rebound effect is weak where the market share of the energy efficient product is small and the efficiency improvement of the new product over the incumbent product is big, both of which clearly apply to microgeneration. 2) Reduced rate VAT is intended to lead to more purchases of microgeneration units because these produce and save sustainable energy rather than consume conventional energy (in contrast to for example, energy efficient fridges). If the reduced rate VAT leads to more sales of, for example, solar panels, then this does not lead to more energy consumption. On the contrary, it leads to a beneficial outcome in the context of the 20-20-20 targets.

A related point in the Copenhagen Economics report is that the reduced rate VAT subsidy is not targeted in the way that tax-at-root subsidies are and can therefore also lead to bad outcomes. For example, reduced rate VAT on a large A-rated fridge but not on a small B-rated fridge can encourage the purchases of larger fridges, thereby increasing overall energy consumption. Again, this concern does not apply to microgeneration as reduced rate VAT should be applied to the entire range of microgeneration products on the grounds that all certified microgeneration products are good for the environment.

The second main concern highlighted by the Copenhagen Economics study is the honest declaring of VAT values. If a product is professionally installed and the reduced rate VAT applies to the product but not to the installation service, there will be a clear incentive to over-report the value of the product and underreport the value of the installation service. However, this concern can be fully addressed for microgeneration products by applying the same reduced rate VAT to both the product and the installation service as is successfully done in the UK.

The third main concern is that reduced rate VAT can trigger cross-border trade which would not otherwise have occurred. This is unlikely to create significant distortions for three main reasons. 1) If a consumer purchases an installation from a different country, the VAT rate of the consumer's country of residence applies, not that of the installer so consumers will never be able to choose from a suite of products with differing rates of VAT, thereby eliminating the main potential driver of induced cross-border trade. 2) Given the amount of technical expertise needed for installation and servicing, microgeneration is mainly installed by professionals who operate locally (microgeneration is not a do-it-yourself industry). This makes it highly unlikely that an installer will respond to reduced rate VAT in another country by offering services there. 3) If reduced rate VAT was applied on microgeneration throughout the EU there would be no artificial trade triggers as there would be no creation of an additional price difference.