REPORT OF THE PUBLIC CONSULTATION ON THE REVIEW OF PROGRESS ON THE 2020 ENERGY EFFICIENCY OBJECTIVE

Summary

This report presents the results of the public consultation on the Review of progress towards the 2020 energy efficiency objective and a 2030 energy efficiency policy framework. In total 720 responses were submitted to the on-line public consultation, with 241 organisations, 179 companies and 21 public authorities having taken part. 264 individuals also submitted their contributions to this consultation.

It was pointed out by several stakeholders that energy efficiency is a sound response to the prevailing energy security issue in Europe and also an effective tool for climate mitigation. It triggers innovation and creates new jobs for the EU economy.

Overall, a majority of stakeholders favoured energy efficiency targets or new measures as the right approach to addressing the shortfall (in achieving the 2020 objective), although a number of stakeholders also stated that the reinforced implementation of existing legislation including active policy on infringements is needed. A number of replies indicated other views in this regard. In general, stakeholders representing industry were in favour of targets expressed in terms of energy intensity improvements whilst non-governmental organisations advocated targets expressed as absolute energy savings.

Stakeholders also provided their views on whether further measures are needed at EU level to foster energy efficiency in different sectors such as buildings, industry, transport, electrical equipment and energy generation and distribution.

Many stakeholders indicated that there is still an untapped energy savings potential in **manufacturing** industry, where energy audits and energy management systems could help realise it.

Many respondents stressed that **energy production and supply** should be addressed by adopting mandatory energy efficiency requirements for new power plants and heating distribution systems, also promoting high-efficiency cogeneration. It was stated that a level playing field across the Single Market should be ensured, and that market transparency and better integration including modernisation of the national grids should be ensured.

As regards **buildings**, a majority of respondents acknowledged the need for strengthening the existing policy framework, by extending the scope of the Energy Performance of Buildings Directive (2010/31/EU) and establishing a target for 2030 with an intermediate milestone, to better address the renovation of existing buildings. On the other hand, a majority of stakeholders representing the **electrical equipment** sector did not see the need for additional measures by stressing that the existing framework is sufficient to cover energy efficiency of products.

In order to achieve targets and implement policy measures, it was stated by many stakeholders that additional financing instruments and mechanisms should be put in place at EU level in order to stimulate needed investments in energy efficiency. A number of

stakeholders stressed that the European Structural and Investments Funds 2014-2020 and Horizon 2020 are key instruments for implementing energy efficiency policies. Overall, it was emphasised that energy efficiency investments should go hand in hand with reducing the existing market and non-economic barriers and also raising awareness amongst market players about the underlying benefits of energy efficiency.

Finally, the public consultation sought views on what could be the most promising technology solutions in future that could help deliver energy savings in the 2020 and 2030 time horizon, and how their development and uptake could be supported at EU level. Several stakeholders stressed that new energy efficiency technologies and solutions are a crucial element of the 2030 framework and that the right demand side policies should be put in place at EU level. On the other hand, a number of respondents argued that the right technological solutions and technologies are already available in Europe and focus should be placed on promotion of best practice, awareness-raising and information.

A broad range of ideas for possible actions were put forward by respondents. This report explores the feedback in more detail. The policy conclusions drawn by the Commission will be set out separately and are not addressed in the present report.

1. PROCESS

The consultation consisted of a questionnaire in English with both closed and open questions. The on-line questionnaire can be found at the end of this report.

The public consultation complied with the Commission's minimum consultation standards, including the 12 week minimum duration (from 3 February to 28 April 2014). The standard Commission internet tool for Interactive Policy Making (IPM) was used. As participation was voluntary and based on self-selection, the views expressed by respondents are not necessarily representative of the views held by all stakeholders or citizens.

2. STAKEHOLDER COVERAGE

Overall 720 responses from individuals and organisations from 27 Member States were received through the IPM tool (the on-line questionnaire).

Type of stakeholder	Number	Proportion
Organisations	241	34%
Companies	179	25%
Individual citizens	264	36%
Public authorities	21	3%
Other	15	2%
Total number	**720**	**100%**

In total 241 organisations and 179 companies took part in the public consultation. In addition, 21 public authorities and 15 other entities submitted their replies. Furthermore, 264 individual citizens contributed their views to this consultation.

A few additional responses, 13 submissions, were submitted by organisations which did not make use of the web-based interface to reply to the questionnaire. Some of those who replied to the online questionnaire also submitted their position papers. The statistical data in this report refer only to responses made by the 720 responses submitted through the IPM tool. However, the views in all the submitted responses, including those submitted without using the IPM tool, have been considered by the Commission services.

3. STAKEHOLDERS' RECOMMENDATIONS

Public consultation was structured in 2 groups of questions. The first part was of a general nature which focussed on energy efficiency policy options and potential means of setting the binding or indicative targets and measures and the second part focused on energy efficiency in the specific sectors. In addition, the questionnaire contained horizontal questions on financing instruments to mobilise investments for energy efficiency, and also on building the capacity of actors in the energy efficiency sector and on ensuring the necessary technology solutions and their uptake at EU level.

2.1. Energy efficiency target(s) and measures

This part of the public consultation sought views on possible policy scenarios that could be undertaken to narrow the shortfall of reaching the 20% energy efficiency target by 2020 and also looking into the 2030 perspective. The questions covered the following options:

- Proposing energy efficiency targets;
- Reinforcing the implementation of existing legislation including active policy on infringements;
- Proposing new legislation;
- Other suggestions.

1) Energy efficiency targets

Several stakeholders emphasised that in general energy efficiency efforts should aim at reducing the EU's dependency on imported gas and serve as a political response to ensuring the security of energy supply. Energy efficiency also aims at mitigating climate change and creating new job opportunities for the European economy.

To the multiple-choice question on what could be the right approach to addressing the shortfall (of achieving the 2020 objective), most replies (312 or 43%) indicated a preference for energy efficiency targets, while 294 (41%) stated that the reinforced implementation of existing legislation including active policy of infringements is needed and 135 (19%) replies were in favour of new measures. 322 (48%) replies indicated other views in this regard which have been summarized below in the report.

To the question on how energy efficiency targets should be expressed, 134 (43%) respondents out of those favouring targets replied that these targets should be expressed as absolute energy savings, whilst 61 respondents (20%) indicated that they should be expressed in terms of energy intensity improvements of the economy and economic sectors. Moreover, 92 (29%) respondents believed that the targets should be expressed as a combination of absolute energy savings and energy intensity levels in order to represent a better benchmark upon which to frame a 2030 objective.

To the question at what level these targets should apply, many stakeholders argued that such targets should be set at EU level (218) or national level (205), while 110 favoured targets at sectoral level. Moreover, 221 respondents favoured legally binding targets whereas 70 would prefer indicative targets.

Those respondents that favoured legally binding targets stressed that addressing the shortfall should be closely linked to and consistent with the 2030 targets for energy efficiency. In addition, it was suggested that targets should be set beyond 2030 (until 2050) in order ensure a more stable and predictable environment for investors. Several stakeholders argued that targets should be realistic and achievable, with strictly defined monitoring and verification procedures in place demonstrating effective and credible progress towards achieving these targets, including appropriate sanctions for addressing non-compliance. Moreover, it was suggested that regular review of progress should be carried out on the basis of the intermediate milestones. In general, it was emphasised that binding targets would increase awareness amongst the general public and stakeholders, and that a high ambition level would trigger innovative solutions and create more jobs. Moreover, legally binding targets both at EU and national level would help in reinforcing the Energy Efficiency Directive (2012/27/EU).

Some stakeholders argued that legally binding targets should be set in proportionate terms for each Member State to avoid the situation where some Member States would dramatically under-perform and rely on other Member States to 'carry' them. However, such national targets would need to be accompanied by stricter legal requirements (of the Energy Efficiency Directive) and necessary commitments taken by all relevant actors in order to reach them.

It was also emphasised that an absolute energy savings target must be derived from a bottom-up approach based on the cost-effective energy savings potential for the various sectors, prioritising the sectors with the highest savings potential (e.g. buildings), and using a simplified harmonised calculation methodology and eligibility criteria similar to the requirements laid down in Article 7 and Annex V of the Energy Efficiency Directive. however, other stakeholders stressed that sufficient flexibility should be left to the Member States to take forward the necessary measures.

Some stakeholders stated that sectoral targets should also be considered for 2030 by arguing that binding targets work well in the renewable energy sector, and have provided confidence to investors allowing achieving a major increase of renewable energy sources. In these stakeholders' view lack of binding EU and/or national targets for energy efficiency was a reason for why the technologies have not yet been deployed at a larger scale.

In addition, it was pointed out by a number of respondents that a combination of targets at national and sectoral level should apply, since national targets would better take into account the priority sectors. National objectives should be combined with a sectoral plan to boost, for example, energy efficiency in buildings, taking into account supply-side and demand-side measures and involving the relevant stakeholders.

It was highlighted by many respondents that a large untapped energy savings potential lies within manufacturing industry and it should be addressed properly. This would also increase the competitiveness of EU businesses globally. It was suggested that the differentiation of energy efficiency targets for industry branches is needed by setting separate targets for SMEs and large companies within the same industry branch. Member States could also identify the sector potential in their National Energy Efficiency Action Plans. For instance, one of the quickest paybacks for industry would be investing in thermal insulation.

Moreover, several stakeholders suggested that targets for the buildings sector should reflect the 2050 climate objectives, especially for building renovations, to facilitate investment plans. A target for 2030 also is needed as an intermediate milestone for assessing the achievement of the renovations rate needed for the 2050 objective.

A suggestion was put forward that a legally binding savings target should be put in place for the transport sector. Energy savings targets should also be applied to the defence sector – as already in countries such as the U.S. and Denmark. Several respondents argued that a specific target should also be formulated for heating and cooling sector.

Those respondents who favoured targets expressed in absolute energy savings rather than in terms of energy intensity argued that targets expressed in energy intensity would not ensure a decrease of energy consumption in absolute terms. By contrast, stakeholders preferring targets expressed as intensity argued that absolute energy saving targets would limit economic growth and would lead to deindustrialisation and even carbon leakage. Moreover, it was stressed that the overall EU target should be expressed as an energy intensity target for the industry and service sectors in order to take into account structural effects and economic growth.

2) Reinforcing the implementation of existing legislation

294 respondents (41%) called for further reinforcement of the implementation of the existing legislation, many of them insisting on the more ambitious implementation of the Energy Efficiency of Buildings Directive and Energy Efficiency Directive. In their view these legislative instruments serve as the main driver of energy efficiency across the different sectors.

It was pointed out by several stakeholders that at this stage it is too early to assess the impact of the implementation of the Energy Efficiency Directive as the transposition deadline is still due (on 5 June 2014) and measures need some time to deliver results. This Directive defines a set of key innovative energy efficiency instruments. A better coordination and dialogue between the EU and Member States should be ensured to make the most effective use of the available tools in order to allow better achievement of the savings targets. In addition, it was stressed that a common implementation strategy could be developed engaging all the relevant stakeholders. This could increase the quality, support and ownership of results, help identify best practices, encourage coordination of financing instruments.

A number of respondents emphasised that EU financing is crucial for implementing existing measures, and that financial incentives should be linked to dissemination of best practice in achieving energy savings. Some stakeholders argued that more stringent infringement procedures and sanctions should be put in place to allow better enforcement of the existing legislation. Suggestions were put forward on putting more emphasis on public awareness activities pursued at EU level in order to inform market actors, including industry, about the benefits of saving energy and reducing costs. Energy efficiency in general should be promoted as an instrument for improving industrial competitiveness and serving to combat the energy poverty.

A number of stakeholders believed that energy audit schemes established under Article 8 of the Energy Efficiency Directive should be linked to concrete savings targets. It was also stressed that more stringent actions could help achieving the untapped energy savings potential in manufacturing industry. Moreover, several stakeholders pointed out that the reform of the ETS along with the recently proposed market stability reserve mechanism would better contribute to energy efficiency in the future.

Some stakeholders also pointed to the need for ensuring consistency between the provisions under the Energy Efficiency Directive on the use of energy performance contracting by public authorities and EU rules on public accounting to facilitate the use of energy performance contracting.

3) Proposing new legislation

135 (19%) respondents called for new legislation to foster energy efficiency, which in their view would create stronger demand, reduce remaining economic and non-economic barriers and provide long-term predictability to investors. It was argued that the main issue is the lack of action and ambition level to drive the uptake of energy efficiency. Therefore, new legislation and requirements, for example, aiming at extending the scope of building renovation or implementation of energy audits along with recommendations on cost-effective improvements for enterprises should be further developed.

Several stakeholders put forward concrete ideas for revising the existing EU legislation. Notably, it was pointed out that in order to meet ambitious energy savings objectives for 2030, the 1.5% energy efficiency savings target laid down by Article 7 of the Energy

Efficiency Directive should be retained and increased during the 2020-2030 period. It should also be considered whether 1.5% is sufficiently ambitious for the current 2014-2020 obligation period. Moreover, it was suggested that exemptions allowed under the Energy Efficiency Directive could be removed, for example, concerning the transport sector which currently can be excluded from the baseline for calculating the energy efficiency savings targets under Article 7. In addition, it was stressed that exemptions under Article 5 to achieve the 3% annual renovation rate for public buildings should also be removed. The 3% rate should apply to all public buildings (owned or rented) irrespective of floor area and location (without the limitation to central government buildings).

Some stakeholders emphasised that technical standards and definitions should be harmonised in the Energy Performance of Buildings Directive, and that the Energy Performance Certificate should be strengthened by incorporating additional information. Furthermore, a longer term outlook beyond 2020 is needed for the Ecodesign Directive and Energy Labelling Directive. Finally, it was stressed that emission performance standards for the transport sector need to be expanded to other modes of transport.

It was pointed out that new legislation should consider institutional and governance reforms to strengthen accountability at national level for delivering commitments in current and future National Energy Efficiency Plans and to reporting on progress. Economic reforms are also needed to create the enabling environment for energy efficiency. This should be done with the support of appropriate financing and investment measures including State Aid.

4) Other suggestions

322 respondents (45%) used the open option to provide their views on the question on what could be possible policy scenarios to address energy efficiency. Several respondents stated that they favour a single, realistic energy and climate target addressing the reduction of GHG emissions on a global level playing field, complemented by an equal-ranking target for industrial growth. It was also stressed that energy efficiency and renewable energy would in in any case be drawn on in delivering this objective, and the retention of only a single objective would allow avoiding counterproductive effects, such as double regulation. Flexible energy efficiency improvements on a voluntary basis by taking into account specific sectors and national context could be the most effective means to reduce CO_2 emissions and foster economic growth.

Moreover, some stakeholders argued that energy efficiency measures should not bring additional costs to sectors already covered by the ETS. Additional energy efficiency targets affecting these sectors would only increase the overall costs.

Several stakeholders stated that improved modelling of energy efficiency and energy savings, and identification of the cost-effective potential for energy savings would provide greater understanding of how energy savings can be achieved and where to concentrate efforts in terms of additional policies and measures and financial support mechanisms. Better understanding of the benefits of the energy savings potential in terms of jobs created, drivers of growth and competitiveness, reduction factors of energy costs, increased energy security and resulting reductions of greenhouse gas emissions would demonstrate that energy efficiency is a correct solution to many of the issues Europe is currently facing. Moreover, discount rates assumed for energy efficiency measures in existing modelling must be reduced in order to be more realistic and prevent unfairly high depicted costs of these measures.

It was argued that industry has a track record in reducing energy intensity as well as emissions. Further reductions must thus be economically justified. In this regard, binding

targets and new legislation will only make Europe a less attractive place to invest and result in higher unemployment. Best practice sharing and development and deployment of new technologies could be the most constructive manner to further improve the energy efficiency.

Respondents stressed that in general it is hard to predict the development of the economic activities over the next decade and that energy consumption is correlated with many parameters, including the two most important ones, the level of economic activity in Europe and the cost of energy. Several stakeholders emphasised that energy production should follow economic development and not constrain it. Given the fact that Europe itself cannot produce more energy without endangering its environment, it requires more efficient coordination and cooperation across borders, and an integrated approach including energy storage and distribution that would allow flexible response mechanisms.

2.2.Energy efficiency at sectoral level

The public consultation asked whether further measures are needed at EU level to foster energy efficiency in different sectors such as buildings, industry, transport, electrical equipment and energy generation and distribution.

1) Buildings

As regards the buildings sector, 359 respondents (50%) believed that further measures are needed whilst 301 (42%) thought that there is no need for further action, and 60 (8%) respondents had no opinion on this matter.

Many respondents underlined that buildings is one of the economic sectors where massive energy savings could be achieved. However, limited progress so far is often due to the lack of financing and other market barriers. In general, the policy framework for improving the energy performance of existing and new buildings needs to be strengthened and cooperation and coherence should be ensured between different policy and legislation measures, also covering all phases of a building's lifecycle. It was stressed that the implementation of the Energy Performance of Buildings Directive is key and should be supported with the significant EU investment, and that demonstration projects are key to enable increasing the uptake of these technologies from an economic point of view.

A number of respondents stressed that in order to exploit the untapped energy savings potential in buildings, the EU should define a long term objective with intermediate milestones, supported by the right policies and financial schemes to remove market barriers and incentivise renovation. A clear framework should entail wide-scale renovation programmes, the need for a skilled workforce in deep renovation combining building envelope insulation and other measures.

Moreover, it was emphasised that a binding target for 2030 would provide certainty and convergence for long-term financing decisions. Such a target should be set at national level due to different national circumstances, including the climate variations amongst the Member States. Moreover, a target for 2050 could serve as a driver for an increased rate of renovation of existing buildings. In general, cost effective reduction of energy consumption should be given a priority and it should be well reflected in the definition of the nearly zero-energy buildings, including reflecting it in national building renovation strategies under the EED on the basis of agreed mandatory templates for such strategies.

A number of stakeholders stressed the need for long-term EU funding such as the European Structural and Investment Funds to support major renovations, whereby, for example, the level of financing would depend on the achieved savings as a result of the renovation.

Some respondents suggested that minimum performance requirements for rental of existing buildings should be also established at EU level. It was suggested that the Energy Efficiency Directive must put forward measures with the long-term vision that would require extending the 3% renovation rate to all public buildings and publicly supported buildings, set stricter standards than cost-optimal levels for these buildings, require the use of new business models that remove barriers for increased energy efficiency, mandatory requirements for the implementation of cost-effective solutions in buildings. This must also be reflected in the national long- term strategies for building renovations.

It was seen by some stakeholders as important that any additional requirements are set in terms of energy performance rather that pressing for specific technical requirements that might not be cost efficient. In addition, it was suggested that the extension of the scope of requirements for the energy performance of buildings is needed, for example covering also lifts, escalators and moving walkways. Fiscal incentives should also be strengthened, including applying a "polluter pays principle". Stakeholders argued that financing incentives would encourage final consumers and enterprises to better meet the energy savings targets embedded in the EU and national buildings legislation.

A number of stakeholders shared the view that Energy Performance Certificates (EPC) should be strengthened, by making them harmonised at EU level. It is also necessary to improve their overall quality and functions which could foresee mandatory on-site visits and setting up a database at national level. The EPC should be better explained to ensure transparency. Moreover, EPCs should become comprehensive "building passports" to follow each building throughout its lifetime and which could be made publically available in national registries.

Some stakeholders called for revision of the Energy Performance of Buildings Directive and relevant parts of the Energy Efficiency Directive to include a measurable definition of deep renovations and a quantifiable objective to accelerate deep renovations of residential and tertiary buildings. Furthermore, it was emphasised that long term renovation roadmaps need to become a key planning tool setting comprehensive strategies, including financial incentives, in order to refurbish national building stocks. It was also underlined that Member States should introduce legal minimum energy efficiency requirements for rented buildings which are very often the least efficient.

In addition, it was underlined by several respondents that initiatives promoting energy efficiency in buildings should in general follow a holistic approach and focus on the whole value chain covering efficient technologies, district heating and smart metering and billing information. It was stressed that remaining obstacles in national property laws should be removed and that the issue of “split incentives” between landlords and tenants should be properly addressed. In addition, obstacles for effective energy performance contracting should also be tackled.

It was also emphasised by some respondents that participation of SMEs should be facilitated, e.g. SMEs in the construction sector should have access to training as well as access to self-assessment instruments enabling them to check the quality of energy efficiency improvements.

Several respondents called for new measures to trigger mass-scale deep renovation of existing buildings. As regards new buildings, it was stressed that a revised Energy Performance of

Buildings Directive should propose a harmonised technical definition of Nearly Zero Efficient Buildings (NZEB) to converge on common nomenclature, objectives and calculation methods, and that buildings-related provisions of the Energy Efficiency Directive (Articles 4 and 5) should be incorporated in the revised Energy Performance of Buildings Directive to have a single and powerful policy instrument.

Moreover, it was also emphasised that Energy Efficiency Obligations should become a useful tool for providing renovation investments and should continue also after 2020.

2) Industry

A majority of stakeholders (424 or 59%) believed that further policy measures are needed at EU level to foster energy efficiency in industry with (192 or 27%) against and (83 or 12%) having no opinion in this regard.

A number of respondents stressed that the market and its technological breakthroughs should play a role in achieving the necessary cost savings. It was also stressed that strong political commitment and legislation are needed to ensure that the cost-effective savings potential in industry is realised. For example, adapting business models to energy efficient production processes would allow producing high quality products at lower cost, thus increasing competitiveness. It was argued by several stakeholders that a strong potential for additional savings and reduced GHG emissions lies in recycling.

A majority of respondents who favoured additional measures addressing energy efficiency in industry suggested that in order to achieve the unrealised energy-saving potential in industry, energy efficiency should become part of strategic decision-making within energy management systems involving a wide range of areas for improvement such as circular economy, resource efficiency, insulation, use of efficient electric motors and variable speed drivers, use of automation and control equipment, monitoring systems and maintenance, including behavioural change.

Moreover, it was emphasised by many stakeholders that there is a great potential associated with energy audits required by the Energy Efficiency Directive; however, this instrument should be strengthened by ensuring that resulting recommendations become mandatory, at least for those recommendations that address actions with a short pay-back period. In addition, energy audits could be extended to cover also SMEs to help smaller companies to find the best solutions to adapt to increasing energy prices. Some stakeholders were more cautious by pleading that existing energy audit requirements should be continued. It was underlined by a number of respondents that energy audit provisions should be used to encourage companies to trigger investment decisions in order to improve energy efficiency in processing and peripheral energy use. In general, additional financial mechanisms and instruments are needed in order to pursue these necessary measures.

Several respondents argued that best practices and benchmarks should be developed to increase the use of energy audits, and that benchmarking should be developed for the relevant industry sectors. An assessment of the cost-effective potential of each particular sector of industry is needed to identify gaps, design tailor-made energy efficiency objectives and measures to target relevant sectors.

Several stakeholders suggested that appropriate energy efficiency benchmarks should be defined in the Best Available Techniques (BAT) reference documents (BREFs). These benchmarks should be used for setting ambition levels and be more frequently reviewed.

Moreover, ambitious requirements on energy efficiency in the relevant sector BREF reviews should be adopted.

Some respondents called for voluntary initiatives, to be encouraged through practical and cost-effective support measures, rather than additional mandatory requirements. Such voluntary initiatives, for example, would ensure implementation of practical energy management solutions while avoiding the additional administrative burden stemming from the additional regulations.

To this end, it was argued that greater information for all market actors, especially on the benefits associated with energy efficiency in industry should be promoted, alongside information on concrete solutions, especially for those that have relatively short payback periods. In addition, it was highlighted that specific requirements for facility manager training, workforce development and alignment of training needs and workforce development are needed to achieve the necessary results. It was suggested that "Learning energy efficiency networks" could be an effective instrument to learn about energy saving potentials, particularly for SMEs, and that financial support for the establishment of such networks could be provided at EU level.

Those respondents who were against additional measures expressed views that there is no need for additional targets or other mandatory requirements imposed on the energy intensive industries that are part of the ETS. They argued that new industrial installations are already energy-efficient and that ambitious top-down EU policies would cut investments resulting in higher cost burden for industry. In general, they argued that long term climate and energy policies will only be achieved by working in accordance with economic and growth needs.

It was noted that at industry level, the ETS is the right instrument for energy efficiency improvements. In order to provide incentives for energy efficiency measures the ETS should be strengthened to contribute its role as the central market-based instrument. It was also argued that the ETS should be strengthened as the single steering method in the sector, and that heating and cooling sector should also be included.

Many respondents underlined the need for reforming the ETS in order to contribute in a cost-efficient manner to the reduction of greenhouse gas emissions during the period 2020-2030. Furthermore, it was stressed that it should be ensured that funds generated by ETS are earmarked for further energy efficiency measures in energy intensive industries. However, when reforming the ETS, competitiveness aspects and risks of carbon leakage should be taken into account.

A number of respondents stressed that caution should be employed as regards the implementation of Energy Efficiency Obligation schemes, and that company-specific targets should be avoided, arguing that such targets would diminish early action and add disproportionate administrative burden. Increased costs for industry would hamper the investments needed for expanding the business and would risk delocalisation to third countries. However, it was pointed out that energy intensive industries are contributing with their manufactured products and technologies to energy efficiency in buildings, transport and other economic sectors.

Several respondents perceived high energy prices as a helpful driver to take the necessary action to boost energy efficiency in industry. Nevertheless, others perceived energy efficiency policies as an additional burden to the competitiveness.

Several respondents believed that the completion of the internal energy market would ensure more energy savings in the energy supply and distribution markets. National policies could deliver more as regards the promotion of efficient co-generation and industrial heat recovery in line with the requirements of the Energy Efficiency Directive, as could the linking of regulated remuneration levels for network operators to the achievement of specific energy efficiency targets or connection of co-generation.

Some views were expressed that market failures mean regulatory action is required to motivate businesses to pursue the necessary energy saving actions since raising awareness of energy efficiency alone will not trigger the necessary actions. The EU should learn lessons from national schemes that have used financial instruments to drive energy efficiency as in the UK and Denmark, for example.

Finally, it was stressed by a number of respondents that it is of utmost importance that the existing legislation is implemented and that it is too early to judge whether additional measures are needed before the Energy Efficiency Directive is fully in place.

3) Transport

As regards transport, a majority (473 or 66%) of respondents had the opinion that further policy measures are needed with 102 (14%) respondents being against, and 121 (17%) having no opinion in this regard. Stakeholders in favour of additional energy efficiency measures in transport suggested that existing non-binding measures in transport should be made compulsory and that better integration with other sectoral policies is needed - such as urban development, innovation, financing, public health and regional development and access to resources.

In general, it was stressed by many stakeholders that transport should be one of the priority sectors to address energy efficiency. To this end, a transformation of the entire transport system is needed since it is the largest consumer of final energy. A combination of different measures should be used, e.g. increase in the use of non-road alternatives or taxation policies to achieve a level playing field across the transport modes.

It was argued by some respondents that transport should be covered by the Energy Efficiency Obligations schemes or alternative approaches in order to achieve further energy savings. EU transport policy should aim at reducing energy demand, achieving modal shifts to more efficient transport modes and vehicle efficiency improvements.

In order to improve energy efficiency in transport, the Trans-European Transport Networks (TEN-T) should be strengthened. This could be accomplished by the international, cross-border application of existing logistic concepts and aerodynamic modifications to vehicles. Moreover, new mobility solutions including vehicle and bike pooling and sharing must be further developed, and better integrated into public transport systems. In order to pursue these measures the EU should develop a comprehensive strategy, including investment, incentives and market design.

Moreover, it was stressed by a number of respondents that the provisions of the Fuel Quality Directive on greenhouse gas emissions from fuels should be continued beyond 2020.

Those respondents who favoured additional measures in the transport sector suggested that electrification of transport presents a great opportunity for reducing fuel imports and also GHG emissions. However, the electrification of transport is linked to many questions that need to be addressed in order to make this transition effective. These would include transition

guidelines from hybrid to plug-in hybrid and fully electric vehicles, and implications of regional climate for vehicle battery performance. Research should be carried out for the development of alternative and promising battery technology, hydrogen fuel cells, structures for distributor networks and service, public charging infrastructure and grid implications.

To this end, Horizon 2020 could be instrumental in creating a research and/or collaboration platform for responding to these issues. Furthermore, it was stressed that deployment of pilot projects in this area would be essential. Moreover, continued innovation for efficient and clean transport through, for example, superior light-weight and tailored materials such as plastic based composites should be fostered. To make all these innovations happen, a multifaceted approach is needed. Technologies should be developed and different industry sectors, and the research community, should collaborate across the whole value chain.

It was stressed that in order to promote sustainable transport solutions an interoperable, alternative fuels infrastructure in Europe should be put in place, also diffusion of innovative and interoperable technologies that could help save energy and reduce CO_2 emissions. Efficient road lighting and traffic control systems should be fostered on one hand, and obstacles impeding cross-border transport or infrastructures should be removed on the other. To this end, the recently adopted Directive on the Deployment of Alternative Fuels Infrastructure will enable improving the energy efficiency of road transport.

It was pointed out that regulators should ensure that recharging points are compatible with smart grids and that an ambitious minimum number of recharging points is set for 2020 to send the right signal to investors and industry that will produce the necessary technological solutions. In addition, national policy frameworks should be given flexibility to define national targets and objectives for the deployment of an alternative fuels infrastructure. Policy to support standards in electrification of transport can drive optimization of the design of the electricity grid and infrastructure, where features such as load balancing, metering and the charging infrastructure are important.

Overall, demand-side systems together with smart grid solutions will provide an intelligent platform for the smooth integration of electric and plug-in vehicles into the electric grid. It was also stressed that in addition to measures fostering the electrification of transport, other alternative fuels like biofuels from waste and residues or fuels based on power-to-liquid/power-to-gas conversion should be developed for those transport modes that cannot be electrified.

Some stakeholders stated that the Clean Transport Package provides a framework to guide investments and technological developments in alternative fuels and that it also provides a positive signal to national authorities and investors for encouraging the market uptake of alternative fuel vehicles and vessels. However, such measures should be flexible and cost efficient to preserve the competitiveness of the different transport sectors, especially for shipping. As regards maritime transport, international binding measures on reducing CO_2 emissions should be implemented via the International Maritime Organisation.

It was suggested that fostering energy efficiency in transport should be further supported by measures based on detailed EU-wide monitoring of the use of alternative vehicles and impact of their infrastructure on local energy grids to assess the impact of policy measures and their contribution to achieving the EU ambition of reducing the number of conventionally fuelled vehicles in urban areas by 2030. It was argued that although urban sustainable mobility plans are a good way forward, a EU wide roadmap is also needed, which should be developed in close cooperation with the most polluted regions in Europe, setting out the parameters that would determine progress and identify the most energy efficient alternative fuel solutions.

Measures such as training schemes to reduce fuel consumption, financial support for mobility management, investment in energy efficient vehicles (CNG, LNG, hybrid and electric vehicles) and telematics services for public transport to ensure a change towards energy efficient mobility should be urgently addressed. Member States could financially support investments for uptake of vehicles propelled by alternative fuels and co-finance the expansion of a supply network for alternative fuels. It was argued that better integrated management of transport infrastructure is needed to increase uptake of more efficient transport modes. Some stakeholders argued that fiscal incentives and tax measures should play a role in this regard, also introducing the "polluter pays principle". It was pointed out that high energy prices have led to the increasing efforts in fostering energy efficiency in transport.

Some respondents called for modal shifts to more efficient transport modes, for example to rail transport or shipping, including also freight. It was argued that rail technologies are already 3 to 4 times cleaner than road or air transport. EU support could be provided via regulations or infrastructure projects. A suggestion was put forward that a carbon tax on petroleum products should be applied to road transport to align its level since rail transport is impacted by the ETS as its main power source, electricity, is covered by the cap-and-trade scheme. This would ensure a level playing field across the transport modes.

On the other hand, some stakeholders argued that forced modal shift should be avoided. Measures should aim at greening individual modes at source and they should not favour one mode over the other and should be technologically neutral. A reflection should be made at EU level on whether a sustainable freight transport network can be best achieved from an economic, social as well as environmental perspective by further electrifying rail infrastructure or by using these funds to electrify main road corridors. The use of taxes and levies in order to change behaviour should be redirected to avoid the situation that these tools are used only for fiscal purposes and are not encouraging greening at source through the earmarking of fiscal revenues. It was stressed that the use of alternative fuels in commercial road transport operations should be further encouraged and their refuelling infrastructure further deployed and harmonised.

It was stated by several stakeholders that public transport plays a key role to improve energy efficiency of transport including shifting from road transport to other transport modes such as railways and ships. Intermodality must become the core principle underlying all mobility policies, especially in public transport where the interplay between services must be enhanced (e.g. with joint planning of networks, coordination of timetables, better information provision, common reservation and ticketing systems, common baggage handling, enhancing passenger rights). Information and communication technologies and services can play a role in fostering this.

As regards emission performance standards, it was stressed by many respondents that existing standards need to be continued and improved further, and that work should continue on standards for heavy-duty vehicles. The next revision of CO_2 emission performance standards for light-duty vehicles shall explore possible options (e.g. energy efficiency parameters, super-credits, tailpipe CO_2 standards or GHG emissions). In addition, CO_2 label should be further discussed by considering possible options such as e.g. absolute or relative CO_2 emission performance levels.

Some views were expressed that ambitious targets for 2025 and 2030 should be set. Targets for 2030 should reflect continued progress and advances in technology. To avoid rebound effects, economic measures such as ETS (at refinery level) and taxation should be applied. It was also pointed out that additional measures are needed to address energy efficiency in aviation and that the EU should push harder to implement the Single European Sky.

4) Electrical equipment

To the question whether additional measures for electrical equipment sector are needed, 259 (36 %) stakeholders replied affirmatively, whilst 279 (39 %) respondents believed that there is no need for further measures, with 159 (22 %) not having any opinion on this matter.

A majority of those who replied affirmatively stressed that even though the Ecodesign Directive (2009/125/EC) and Energy Labelling Directive (2010/30/EU) have contributed to a significant reduction of energy consumption, in the light of the upcoming Review of this legislation several aspects should still be addressed. Concerning the Ecodesign Directive these should be: speeding-up the process that leads to the adoption of implementing regulations, setting minimum requirements that are not quickly outpaced by market developments and strengthening market surveillance by cutting red tape.

As regards the Energy Labelling Directive, there is an urgent need to improve the design of labels. The 2010 decision to add additional classes with plusses instead of ensuring a rescaling of the label has reduced the ability of the label to guide consumers' choices. It was also argued that energy labels should include broader information on other environmental aspects and absolute energy consumption, especially for larger products which have higher overall energy consumption.

It was suggested by several stakeholders that both directives should be reviewed in light of the 2030 framework to foster development of innovative technologies due to a greater predictability for the investors. Several stakeholders also called for increasing synergies and aligning the decision-making process between the ecodesign and energy labelling measures to allow reduced inconsistencies in the drafting phase and speed up the implementation of the measures. Moreover, synergies with other legislation such as the Ecolabel, Green Public Procurement, and recycling, waste and chemical legislation should be ensured.

Several respondents indicated that demand side policies should be designed to stimulate demand for higher efficiency products in the market. It was emphasised that even though the existing ecodesign legislation is sufficient the extension of its scope could be considered. In addition, the ecodesign directive should be coupled with measures speeding up the replacement rate of old equipment such as vouchers or eco-cheques. Furthermore, the directive should seek to optimise not only the end-use equipment, but the entire system in which it operates.

It was pointed out that financial incentives such as reduced VAT rates for the most efficient appliances could also be promoted.

Some stakeholders argued that legislative processes should be accelerated and become more dynamic in order to reflect current market transformation processes. The level of ambition of ecodesign standards needs to be increased. The criterion of least-life-cycle-costs should be reviewed and the criterion of the best available technology (BAT) should be considered as the benchmark. Moreover, the future regulatory framework needs to support innovation as the current framework fails to provide incentives for frontrunners.

A number of stakeholders viewed the importance of electrical equipment sector in the broader energy efficiency policy context, notably seeing it as an integral part of other sectors such as buildings or energy supply, where electric installations and systems play an increasing role to optimise overall energy performance. This is in particular important in the development of smart grids, where the efficient management of infrastructure in combination with efficient appliances interoperating with the future energy system including smart metering would

ensure significant energy savings. Furthermore, demand response should provide consumers with real-time control signals motivating them to adjust their consumption. Moreover, peak load management, according to the respondents, was regarded as a significant element that allows optimising the functioning of power plants and the power system as a whole, and also contributes to the security of supply.

It was also suggested that in order to increase the energy efficiency of electrical appliances, manufacturers should be required to conduct a design assessment of their products at an early development stage. Such an assessment, based on generic data, would aim to optimise resource use in the product design together with durability and quality requirements of the specific product. Ultimately, this would drive production towards a best-cost producer model. It was argued that the approach of ecological profiling would not remove the need for specific energy efficiency parameters that could be verified on the product itself.

Some stakeholders argued that the ecodesign directive should omit the use of primary energy conversion factors as these mislead consumers that cannot choose their energy system. The electricity conversion factor should be treated as a CO_2 neutral one in order to meet the 2050 vision of a low carbon future.

It was suggested to set-up a publicly available, producer-supplied product-database for both directives that would improve monitoring and transparency of market development and would facilitate the revision of existing and the drafting of new legislation.

Those respondents who were against additional measures for the electrical equipment sector stated that the Ecodesign Directive and the Energy Labelling Directive already cover most significant aspects of energy efficiency concerning electrical equipment. Instead of adopting new measures, these two pivotal directives should be enforced and implemented, and a comprehensive assessment should be carried out and discussed with stakeholders before launching new initiatives.

Moreover, it was underlined by several stakeholders that the current review of the energy labelling regulation and certain aspects of ecodesign set a favourable framework for increasing energy efficiency in electrical equipment. It was stated that demand-side policies are key for triggering innovative solutions; however, market-based mechanisms should be also considered.

A number of stakeholders argued that any further extension of the scope of the ecodesign directive targeting product groups or industrial systems and processes, in their view would generate complex trade-offs and create more regulatory burden for businesses, especially for SMEs. Thus it is crucial to ensure proper functioning of the decision-making process under the existing directive, especially with regard to the participation and interests of SMEs, and conduct a cost-benefit-analysis of its implementing measures before proposing further ecodesign measures.

On the other hand, some stakeholders acknowledged that the implementation of both directives could be improved. For instance, in order to better address the efficiency potential of business-to-business products within the ecodesign framework, the option of setting generic requirements and developing product-specific standards should be reverted to, since it was argued that many complex products of the capital goods sector have differing applications and as a result no constant operating point so that specific energy efficiency requirements can often not be determined.

5) Energy generation and distribution sectors

418 (58%) stakeholders believed that additional measures are needed to address the energy generation and distribution sectors, while 148 (21%) were opposed to it and 119 (17%) did not have an opinion in this regard.

Those respondents who favoured additional measures for energy generation and distribution suggested that mandatory energy efficiency requirements for new power plants and heating distribution systems are needed. It was stated by several respondents that a level playing field across the Single Market should be ensured, and that market transparency and better integration including modernisation of the national grids should be ensured. The priority should be the completion of the internal market for energy to ensure the energy supply and access to customers in all Member States. To this end, it was emphasised by a number of respondents that the expansion of cross-border infrastructure, in particularly cross-border interconnectors, which also foresees decentralised energy distribution, is required. It was pointed out that the current restrictions regarding the development and improvement of European networks of interconnections should be overcome to foster market integration, diversification of energy supply and energy efficiency. In addition, some respondents underlined that energy trade with third countries should be based on a level playing field.

Moreover, the development of smart grids and high-efficiency district heating systems, including the successful rollout of smart meters should be secured by 2020. Several respondents argued that smart grids including energy buffering and storage are indispensable for an improved interconnectivity and managing the flow of electricity according to demand and supply. It is also important for the integration of renewable energy and the successful liberalisation of energy markets. To this end, the development of standards should be properly addressed due to the involvement of many different sectors along the value chain.

Several stakeholders argued that the rules on market design for electricity and heating should allow more active and informed consumer participation than today, and allow new actors such as aggregators to enter the market. Stakeholders argued that aggregators could also facilitate a more decentralised generation of electricity.

Many respondents emphasised that a regulatory framework developing a sustainable and smart energy system in the EU shall be further harmonised. Moreover, it was stated that a flexible and intelligent energy system would deliver a high level of security of supply and efficiently integrate various sustainable technologies. To this end, emphasis should be put on establishing a 2030 target at EU level for smart infrastructure by taking into account potential of demand-side management and proper measures aiming to improve the efficiency and flexibility of energy networks, on the basis of a holistic approach - in addition to the deployment of efficient equipment such as transformers.

A number of stakeholders emphasised that solutions aiming at increasing flexibility in energy systems are important, as they facilitate the efficient deployment of renewable sources. Demand side management and response measures can contribute to this significantly, helping to reduce the need to build generation capacity, particularly to cover peak loads. Stakeholders regretted that these measures have not been considered on an equal footing to supply side options and their penetration in the system has been limited. Many of these measures are implemented in the distribution grid, which has been overlooked by the Commission in recent legislative initiatives such as the Energy Infrastructure Regulation and the Connecting Europe Facility. Building on the provisions of the Energy Efficiency Directive, the rules for the participation of these solutions in the system should be made clearer by removing remaining

barriers. It was suggested that the Large Combustion Plant BREF should be improved to refer to firm provisions for improving energy efficiency in existing plants.

Furthermore, respondents stated that greater emphasis should be put on increasing the overall efficiency of the energy system rather than the efficiency of its single components, and that legislation should promote the implementation of energy efficiency measures by distribution system operators rather than by energy producers. Thus, renewed effort should be placed on promoting infrastructure projects aimed at increasing the efficiency of how the different components of energy, and especially electric, systems interact.

Several stakeholders stressed that regulators should encourage the use of smart meters to provide easy and quick access to consumption information in real-time, allow energy-efficient behaviour and a more active participation by consumers through advanced services such as demand response. It was underlined that demand response will enable consumers to become active players rather than passive users.

Moreover, new measures should enable transmission system operators (TSOs) and distribution system operators (DSOs) to take into account the benefits of demand response and energy efficiency programmes prior to investing in regional network capacity. Regulation should ensure that they are rewarded and not penalised for increasing their efficiency. Taking into account their key position in managing the local grid and the consumer's data, DSOs could play a more active role in the implementation of energy efficiency measures at consumer level.

Respondents suggested that an integrated approach to the energy system should be built on the process established under Article 14 of the Energy Efficiency Directive through lowering the thresholds for data collection and conducting the comprehensive assessment, including a more focused approach to waste heat. In order to have a fair burden sharing of the costs incurred by investors and customers, respondents expressed views that the list and the values of the externalities to be used in the cost-benefit analyses should be better explained.

In the context of the implementation of the requirements laid down in Article 15 of the EED, a number of stakeholders stated that EU and national regulators should establish tariff structures that reward an energy efficient operation of the electricity, gas and heating markets. Furthermore, a specific focus should be placed on the power sector, containing tangible CHP elements; possibly building on the existing guarantees of origin for high-efficiency CHP (the establishment at national level of "efficiently generated" electricity could be assessed). It was suggested that the Commission should aim at encouraging national and local authorities to use a system-wide approach via an extension of the scope focused on the power sector which is stipulated in annex VIII of the Energy Efficiency Directive.

As regards decentralised energy production, it was emphasised by a number of stakeholders that it increases energy efficiency thanks to cogeneration plants and thanks to reduced energy losses in transportation as well as infrastructure costs. Thus, local energy production including from renewable energy sources to reach energy efficiency targets should be considered. It was also stressed that ICT should play a role in decentralised energy production and distribution, which helps to optimise energy efficiency and to manage variations in the supply and demand of energy in real time.

Furthermore, it was stated that an inventory of barriers and opportunities for the development of efficient heating and cooling should be carried out based on reliable market data, using modelling that fully reflects the reality of energy use in Europe and the potential of local resources and flows as well as of relevant technologies.

Combined heat and power (CHP) is an important technology. Many industrial stakeholders consider the ETS as the main driver of energy efficiency in the power sector. On the other hand, it was recognised by a number of stakeholders that the implementation of the Energy Efficiency Directive (Article 14) creates potential for high efficiency cogeneration which could increase its development and also ensure its implementation throughout Europe, whilst preserving the competitiveness of EU industry.

It was pointed out by stakeholders representing industry that process industries use most of the heat from cogeneration internally and that the opportunities for economic links between industrial CHP plants and possible users such as district heating would not apply equally around Europe. Therefore, it was argued that promotion of CHP by market-based mechanisms could more appropriate than mandatory rules adopted at EU level. According to the respondents, some national schemes, for example in Italy, have already applied a market-based approach. It was stressed that criteria for determining the economic benefits of projects or installations cannot be the same across the entire EU. To this end, it was emphasised that barriers to the promotion of economic cogeneration should be removed and the need for companies to achieve economically sustainable rates of return on new projects should be recognised.

The significant energy efficiency potential in power generation could be partly tapped by removing derogations on energy efficiency under the Industrial Emissions Directive. The Large Combustion Plant BREF should include clear requirements to deliver energy efficiency improvements, particularly an incremental energy efficiency improvement for all existing combustion plants, and a CHP obligation for new plants. BAT conclusions should be drawn from the existing Energy Efficiency BREF, which should be reviewed without delay according to regular procedures but not become a simple guidance document. Increasing the flexibility of the energy system will improve efficiency and facilitate the deployment of renewable energy.

A number of stakeholders stressed that the EU should ensure that BAT energy efficiency levels are binding for thermal power generation and that a timeline for large combustion plants (LCP) to comply with it should be established. On contrary, it was argued that Member States are implementing or have implemented strategic reserves or other forms of capacity mechanisms that often extend the lifetime of older power plants without incentivising their improvement.

Some stakeholders suggested that a single capacity mechanism design is needed at EU level, to prevent further fragmentation of the internal energy market. Optimally, this design should incentivise newer, more efficient, flexible, and part-load efficient thermal power generation.

Moreover, care is needed to ensure that European Network Codes are strongly linked to European standards to avoid the possibility of divergent national specifications, which could pose problems for efficient cross-border energy trades and functioning of retail energy markets.

It was also suggested that an Emissions Performance Standard for fossil fuel power plants to improve efficiency is introduced. This would also provide a clear investment signal for the decarbonisation of the sector by complementing the Emission Trading System (ETS). It was stressed that the Emissions Performance Standard is already becoming part of the EU climate and energy policy, following the European Investment Bank's decision to no longer fund power projects that emit more than 550gCO_2/kWh.

6) Financing mechanisms and instruments

A majority of respondents (534 or 74%) replied affirmatively that additional financial mechanisms and instruments are needed at EU level to mobilise investments targeting energy efficiency with 94 (13%) being against and 72 (10%) not having an opinion in this regard.

It was acknowledged by many respondents that access to finance remains the major obstacle to achieve the full energy savings potential across the different sectors. Therefore, more needs to be done to address the gap and the EU has a major role to play by providing a stable policy framework and facilitating long-term, low-rate financing structures as referred to in the recently published report by the Energy Efficiency Financial Institutions Group (EEFIG). Several stakeholders suggested pooling of public funding in appropriate funds and leverage private funding via public money, and that earmarked ETS auction revenue could be used for targeted energy efficiency programmes. Stakeholders argued that financing should apply to a holistic set of measures rather than single measures, and financial and fiscal incentives should be linked to concrete policy measures and targets. It was emphasised that EU funding shall allow reducing the cost of capital for companies (e.g. risk-sharing). Furthermore, it was argued that support is needed for small and medium sized enterprises to facilitate investment in uptake of more efficient technologies.

Several respondents noted that financing dedicated to energy efficiency has been increasing and that European Structural and Investment Funds 2014-2020 and Horizon 2020 provide good opportunities for financing and should remain key instruments to support the implementation of energy efficiency policies. It was suggested that the individual starting point and progress of each Member State should be taken into account, whilst rewarding achievements and best practice. Some respondents regretted that national governments do not always consider energy efficiency as a priority. It was suggested that a specific EU funded energy efficiency programme would motivate governments who do not have energy efficiency as a priority to make such investments.

It was acknowledged by a number of stakeholders that lessons should be learned from the existing schemes that proved to be successful and that further financial mechanisms and instruments should be set up at EU level to step up the efforts of existing successful instruments such as ELENA, JESSICA, Mobilising Local Energy Investments - Project Development Assistance and the European Energy Efficiency Fund. Respondents stated that these experimental instruments triggered innovation and implementation of feasible, cost-effective and sustainable solutions at decentralised level. Amongst the views on new financing instruments, crowd-funding or cooperative societies were suggested which could provide new investment potential. In addition, an Energy Efficiency National Fund (referred to in Article 20 of the EED) could serve as an effective instrument that could aggregate multiple sources of public finance to leverage additional private investment. A number of respondents argued that such funds should become mandatory in Member States. Some respondents saw the potential in the Energy Performance Contracting mechanism, which could be encouraged through third party financing and loan guarantees in order to ease financing, especially for SMEs.

Many respondents shared views that access to finance for energy efficiency investments should go hand in hand with reducing the barriers by simplifying procedures and raising awareness amongst the market players about the underlying benefits of energy efficiency. Moreover, financing for energy efficiency measures should be provided under affordable and attractive conditions. This could be done via voluntary agreements by banks or subsidising loans for energy efficiency measures through credit lines, guarantees, etc. Such levers should be provided in a non-discriminatory manner to all market actors, which, according to

respondents, is currently not the case in all Member States. In general, it was emphasised that effective coordination between public funding sources would allow getting the best leverage from financing instruments.

Furthermore, respondents suggested that Member States should establish "one-stop-shops" to help energy efficiency projects obtain funding. These structures should facilitate aggregation of projects and be accessible at the local level. It was also noted that further efforts should be dedicated to raising awareness of existing and future financial incentives and grants to foster energy efficiency investments. Several respondents stressed that financing should not place a burden on consumers who are already facing the highest level of billing to their homes, especially concerning more vulnerable consumer groups.

In the context of the Energy Tax Directive and the State Aid guidelines on environmental and energy, it was mentioned that Member States could be allowed to apply tax reductions and payback time reductions facilitated by state intervention to counteract negative impacts on competitiveness for globally competing companies. Differentiation of value added tax targeting energy efficiency shall be re-considered at EU level. Moreover, many stakeholders stressed that State Aid rules should not prevent the use of public funds to support public and commercial energy efficiency projects and that guidelines must take a progressive approach on national energy efficiency funding. Therefore, clear guidance on the state aid exemptions would be needed. On the other hand, some respondents called for tightening the rules on state aid in the fields of environment and energy.

Many stakeholders underlined the need for streamlining of financing to address energy efficiency in certain sectors of the economy such as buildings and industry.

As regards industry, views were expressed that pan-European funding is needed to stimulate investments in energy efficiency and that R&D should be promoted to support innovative technologies and solutions. For instance, investment in research and pilot projects for funding more efficient manufacturing processing of energy intensive industries could greatly contribute to the achievement of energy savings. Support for bringing new innovative technologies along the entire value chain to the market is essential, especially in the deployment phase, but should be technology neutral to ensure a level playing field. Some stakeholders from industry regretted that prevailing barriers perceived by industry are payback periods that are longer than businesses often are willing to contemplate. As an option it was suggested that measures identified during energy audits (in line with Article 8 of the Energy Efficiency Directive) which would have a payback time of less than 4 or 5 years should be mandatory. To this end, the increased use of life cycle cost analysis in energy audits (required by Article 8 of the Directive) by industry shall be secured. It was also argued that “green” public procurement and public-private partnerships should be considered. The EU could become more active in the development of risk financing for industrial large scale demonstration projects of new energy efficient technologies. Finally, direct access for energy-intensive manufacturing industry to EU Framework Programmes via e.g. the SPIRE public private partnership should be maintained and intensified.

Concerning the buildings sector, several stakeholders stated that there is an urgent need to ensure stable and long term financing for renovation programmes that goes hand in hand with political will and sufficient public funding for guarantees and incentives to ensure sufficient action in the Member States. It was stated by several respondents that the Renovation Loan in the new round of European Structural and Investment Funds may provide a good basis for addressing part of the financing challenge. The building sector was mentioned as a specific case in which bottom-up legislation also for financing would be necessary to correct market failures. Some respondents stressed that incentives are also needed for homeowners and

landlords. A suggestion was put forward that a special fund to address renovations of buildings could be established at EU level.

2.3. Measures to build the capacity of actors in the energy efficiency sector

322 (45%) stakeholders replied affirmatively that additional measures are needed to build the capacity of actors in the energy efficiency sector, whilst 230 (32%) stated that there is no need and 131 (18%) did not have an opinion in this regard.

A number of respondents stated that there is a need for active stakeholder involvement and interaction of the different market actors within the wider energy system in order to build needed capacity.

Public authorities, including at local and regional level, need EU support to develop long-term visions, update knowledge of the EU *acquis*, best practices and best available technologies, and trigger technical, financial and social innovation in order to ensure the roll-out of large-scale energy efficiency measures and investments. In order to establish a strong energy services market, there is a need to put in place education and training programmes, certification and accreditation schemes. Moreover, several stakeholders stressed that mutual recognition across the EU of professional qualifications in the field of energy efficiency should be considered.

Moreover, respondents emphasised that further awareness raising measures targeting consumers and public authorities should be implemented. Awareness raising campaigns were mentioned as an effective tool to motivate final consumers to implement energy efficiency improvement measures. It was argued that only strong customer demand will ensure the creation of adequate supply of products and services.

As regards public authorities, it was stressed that they should also play an important role by ensuring the necessary framework to facilitate the implementation of energy efficiency measures and functioning of the energy services market.

Concerning municipal authorities, it was suggested that the Covenant of Mayors should receive additional support in order to build the required capacities and disseminate good practices since it allows reaching a large number of municipalities and enables cross-sectoral policies to be implemented at local level.

2.4.Energy Efficient Technology solutions and their development and uptake at EU level

The public consultation also sought views on what would be the most promising technology solutions that could help deliver energy savings in the 2020 and 2030 time horizon and how their development and uptake can be supported at EU level.

Many stakeholders stressed that the required technologies to deliver the cost-effective energy savings potential to 2030 are already available. However, a strong policy framework, underpinned by a robust 2020 and 2030 energy savings target and measures to achieve it, will give industry the necessary confidence and will send the right signal to investors. It was stressed that a level playing field as regards the uptake of new technologies should be ensured and that technological solutions must also be complemented by non-technological innovation.

In the 2030 time horizon, new forms of decentralized low-carbon heating technologies such as micro-cogeneration, solar thermal, heat pumps, biomass boilers and various hybrid systems

have a major role in delivering energy savings. The key advantage of the aforementioned decentralized heating technologies is their adaptability to a broad range of climatic environments and structural conditions. However, it was stressed that the uptake of these technologies requires a clear and stable regulatory framework that incentivises investments for low-carbon heating technologies. Moreover, promotion of energy management and energy auditing standards could play a role (e.g. ISO 5001/ISO 50002, EN16427).

A number of stakeholders emphasised that existing energy performance requirements should be reviewed on a more regular basis, for example, setting more stringent CO_2 emission standards for passenger cars. Also other transport modes could play a role. For instance, shipping has a vast potential for energy savings including more energy efficient engines, hull and propeller cleaning for reducing energy consumption. Some stakeholders also saw the potential for introducing automation and control systems especially in buildings to achieve energy savings.

Respondents stressed that it is equally important to support the development of new market structures and business models in order to accelerate the functioning internal market for energy services, which has been perceived by stakeholders as a driver for energy savings.

Moreover, smart cities and communities could serve as living laboratories to showcase potential solutions. In this context, R&D should play a key role in delivering further energy efficiency improvements. It was suggested that first priority could be the promotion of innovative low-carbon technologies in the context of the Strategic Energy Technologies Plan (SET-Plan), operating under the Smart Cities concept.

2.5.Further comments:

As a last open question, the public consultation invited the stakeholders to provide further comments on energy efficiency strategy.

Here it was suggested that the EU should ensure awareness amongst the general public of efficient use of energy, including behavioural change. Moreover, it was stressed by respondents that more rapid and successful approaches are needed to phase-out inefficient products and processes from the EU market, and to ensure that sufficient numbers of experts receive the needed training for different sectors (e.g. residential and commercial buildings, industrial processes) in order to realise the energy efficiency potential in the EU.

It was stressed by several stakeholders that before adopting new measures, the impact of current policies should be analysed and evaluated. This would allow securing the needed investment and ensure better planning of industry, fostering its willingness to invest in new technologies. Stakeholders stated that the diversity of European energy efficiency markets must be taken into account and that the development of the future framework should leave the flexibility to Member States to achieve their efficiency targets.