Developing a Social Energy Target in Europe

Proposals for bridging the 'Energy Divide' and putting low-income households at the heart of Europe's energy future

NEA
Action for Warm Homes

The Greens | EFA
in the European Parliament

"Our leaky homes make us sick, turn our energy bills into a monthly terror and mean we use far more energy than we need to. Green MEPs will push for an EU-wide social energy target"

UK Green Party Manifesto for the
European Parliament Elections 2014

About National Energy Action (NEA)

NEA is a national charity working to increase investment in energy efficiency for low-income and vulnerable households. NEA believes that radically improving the fabric and heating of our homes represents the most cost-effective long-term solution for tackling high energy bills and helping to eradicate fuel poverty. NEA estimates that the charity has helped over 7.5 million households in the UK gain access to energy advice and energy efficiency grants. Over £110 million of energy efficiency improvements have been installed through NEA's Warm Zones subsidiary community interest company which focuses on delivering a wide set of benefits to low-income households in deprived areas. Through NEA's in-house training scheme around 20,000 people have gained NEA/City & Guilds energy awareness qualifications. NEA also identifies and shares best practice and has built capacity in communities to deliver energy efficiency and fuel poverty solutions for over 30 years.

Acknowledgments and disclaimer

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1. INTRODUCTION

Each year, European Union (EU) Member States are currently consuming circa 17% of the world's energy production with energy use in residential and commercial buildings responsible for about 40% of the EU's total final energy consumption and CO2 emissions. Despite the economic crisis temporarily reducing total energy demand, fossil fuels still represent approximately three quarters of the EU's energy mix. Dependency on imports for all fossil fuels reached 83.5% in 2009 for oil and 64.2% for gas.[5] These energy imports negatively impact the EU's trade balance and energy imports accounted for more than €1 billion per day (around €400 billion a year) in 2013 and more than a fifth of total EU imports . The EU imports more than €300 billion of crude oil and oil products, of which one third comes from Russia. In March 2014, the European Council noted the extent to which this situation has prompted enhanced political concerns and highlights that the Ukraine crisis has further underlined that the future of Russian natural gas supplies to Europe can no longer be relied upon[6].

These concerns over Europe's energy security are also set against a backdrop of soaring European energy prices which have increased substantially in recent years. On average, EU household electricity prices have risen 4% a year for the last five years (2008-2012) and 3% a year for gas over the same time period. This has resulted in millions of households across the EU being unable to afford sufficient household energy with figures provided by Eurostat indicating that in 2012, over 10% of the EU's population were struggling to keep their homes adequately warm[7]. The adverse health consequences this situation prompts within many Member States is increasingly being recognised[8]. The damage to physical and psychological health and welfare and the needless practical and financial pressure this places on Europe's health services is however still growing and fuel poverty is an increasingly serious problem across the European Union and Member States[9].

In response, in January 2014, the Green Group in the European Parliament commissioned National Energy Action (NEA) in an impartial capacity to investigate the feasibility of establishing an 'EU-wide Social Energy Target'. It is hoped that the outputs of this work could ultimately support a bold and new European wide commitment; to ensure that one day every household in the EU could adequately maintain the temperature of their dwelling to safeguard their health and wellbeing.

As this report notes, whilst action to help poorer households keep their homes adequately warm could potentially imply an increase in energy use (as poorer households are more able to afford sufficient energy, their consumption could rise in line with more affluent households), it is hoped that this work highlights how these households can be supported in the most cost-effective and sustainable manner; a radical increase in domestic energy efficiency. The report therefore argues that the EU should consider setting minimum energy efficiency standards for insulating existing domestic properties to the same standard as many new homes built in Europe today. The report illustrates how this approach would reduce energy waste, reduce energy imports overall and crucially address needless suffering. The report has assessed options for legislative changes that could help achieve these ambitious and vital goals. Our proposed legislative reforms are intended to be complementary to, and developed alongside, the new 2030 energy and climate targets that are currently the subject of much debate across the EU and Member States[10]. Through the creation of a clear legislative framework which enhances the need for Member States to protect low-income energy consumers, it is also hoped this would support overall attempts to reach Europe's cost-effective energy saving potential and therefore make it less costly for Europe to meet its other existing energy goals.

The energy saving potential in Europe by 2020 is significant: 30% less energy use within the domestic sector is feasible[11]. Some scenarios and studies have illustrated the potential in 2030 could be much higher. One recent study noted the cost effective energy savings equal to 41% of final EU energy use is possible by 2030 and that the costs of this investment would be offset by savings of €1tr-€2tr during 2020-2030[12]. Overcoming the remaining barriers to reach this potential, especially for low-income households, is therefore a critical EU priority. Reducing energy demand enables all energy consumers to reduce their exposure to rising wholesale costs; reduces the costs associated with a transition to a sustainable energy economy (by obviating the need to build superfluous power generation) and reduces the consumption of higher cost energy in the future (which in the short to medium term will be increasingly likely to contain policy costs as national Government's pursue energy consumer funded policies in order to reach necessarily ambitious environmental targets).

However, despite Europe's significant energy saving potential, the report also notes that the EU Commission has not proposed setting a binding target on energy saving for 2030[13]. This has been challenged by the European Parliament who are rightly seeking a 40% target for energy efficiency by 2030 . This position has been reinforced by research by the Fraunhofer Institute showing that that the EU has a 41% cost-effective end-use energy savings potential for 2030 and if achieved this could lower net energy costs for households and industry by over €239 billion annually by 2030[14]. Beyond the need for an ambitious binding energy saving target, our report also illustrates that existing national and EU-wide funding is not well targeted at low-income households. This is despite EU Council Leader's recently highlighting energy efficiency and energy savings as the key way to address fuel poverty and protect low-income and vulnerable consumers from energy price rises[15]. The Commission's communication also notes the importance of targeting policy measures at those who need the most support and this report therefore also aims to suggest ways in which current gaps in provision can be addressed as a priority.

As well as enhancing the need for Member States to consider increasing investment in energy efficiency to protect low-income energy consumers, NEA have also highlighted where potential exists to create a new and additional EU fund. It is argued that this new fund should be established to finance low cost energy efficiency measures within low-income households. As this report demonstrates, as well as improving the indoor temperature of millions of domestic properties, this additional EU led initiative has the potential to supplement existing and planned energy efficiency employment and argues for a major EU-wide job stimulus, potentially supporting an additional 90,000 low-skilled workers as well as promoting the other co-benefits of energy efficiency measures.

NEA's involvement with a number of European partner agencies has also revealed profound differences in the degree of understanding of "fuel poverty" or "energy poverty" as a major social problem and how it relates to the EU's broader energy priorities. This report therefore illustrates how it is possible to align differing perceptions of the 'problem' and explains how a common understanding of these critical issues can be achieved. However, NEA also notes that this consideration must not hold up the urgent need for adequate action across Europe in the short term.

As this report concludes, if these barriers can be overcome and consensus achieved on the need to address many gaps in provision, it would be possible to pursue a joint and coordinated approach to reducing the 'energy divide' that exists within many Member States . It would also help to ensure that all Member States[16] and their respective citizens understand how existing and planned climate and environmental targets and aspirations can, and must, be delivered at the same time as addressing the social consequences of higher energy bills as Europe continues its sustainable long-term energy transition.

2. EUROPE'S ENERGY DIVIDE

Before this report investigates the current legislative framework and explores how it can be improved for low-income consumers, it is first important to establish the extent of poverty across the EU and explore why energy policies in general can exacerbate this hardship. It is argued that the current approach to energy policy across Europe contributes to an 'energy divide,' where poorer households may benefit least from energy policies whilst paying a higher share of the costs, despite emitting the least emissions.

- ***Poverty and inequality in Europe continues to grow***

  One of the five targets of the Europe 2020 headline indicators is to reduce poverty by lifting at least 20 million people out of being at-risk of poverty or social exclusion by 2020[17]. However, despite this intention, in 2012, 124.2 million people, or 24.8% of the population in the EU-28 were at-risk of poverty or social exclusion (AROPE[18]), compared with 24.3% in 2011 and 23% in 2010[19]. The 'material deprivation' rate also provides an estimate of the proportion of people whose living conditions are severely affected by a lack of resources. On this metric material deprivation currently stands at 9.9 % of the population in the EU-28. There also continues to be increasing inequalities in the distribution of income. Across all EU-28 Member States in 2011 the top 20% (highest equivalised disposable income) of a Member State's population received 5.1 times as much income as the bottom 20% (lowest equivalised disposable income) of the Member State's population[20].

- ***Energy prices have a disproportionate impact on poorer households***

  Unsurprisingly, the poorest households are struggling to cope with soaring energy costs. According to a recent study by the European Commission[21], in the EU on average, household electricity prices have risen 4% a year for the last five years (2008-2012) and 3% a year for gas over the same time period. Whilst Member States have experienced different levels of increases (with consumers in the highest priced Member States paying 2.5 to 4 times as much as those in the lowest priced Member States), the Commission's report also notes that these increases in energy costs are typically above inflation. However, critically, whilst energy bills have risen much faster than inflation for all households, in March 2014, the Institute for Fiscal Studies (IFS) from the United Kingdom illustrated that the largest impact on living standards of UK households was being felt by the poorest households[22]. In particular, the IFS showed how increases in energy prices have been (and are) disproportionately felt by low-income households. As a result, any further increase in prices will impact more heavily on lower income groups, despite these households contributing less carbon emissions per capita and already being at-risk of poverty or social exclusion by 2020[23].

  This worrying trend is also evident in other official statistics produced by the Commission. The following tables have been compiled by extrapolating current social inclusion statistics. EU statistics on income and living conditions (EU-SILC) were launched in 2003 in order to provide underlying data for indicators relating to income and living conditions[24]. The tables below illustrate the metric which is used to track an inability to keep a home adequately warm. Whilst they do not provide a detailed analysis of energy poverty levels (national data-sets should be used to provide an informed view of energy poverty within the individual countries), the EU-SILC data does provide useful comparative information.

Table 1: EU-SILC data on inability to keep a home adequately warm 2012

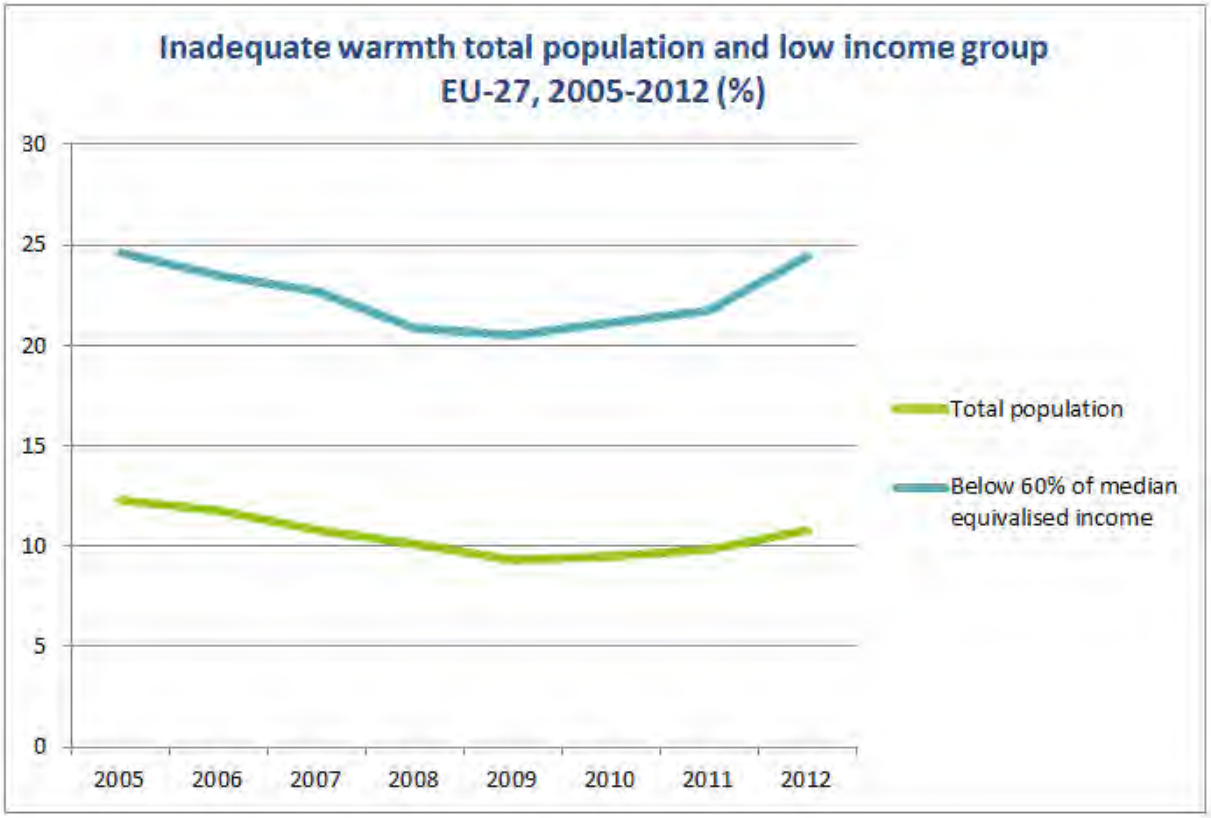
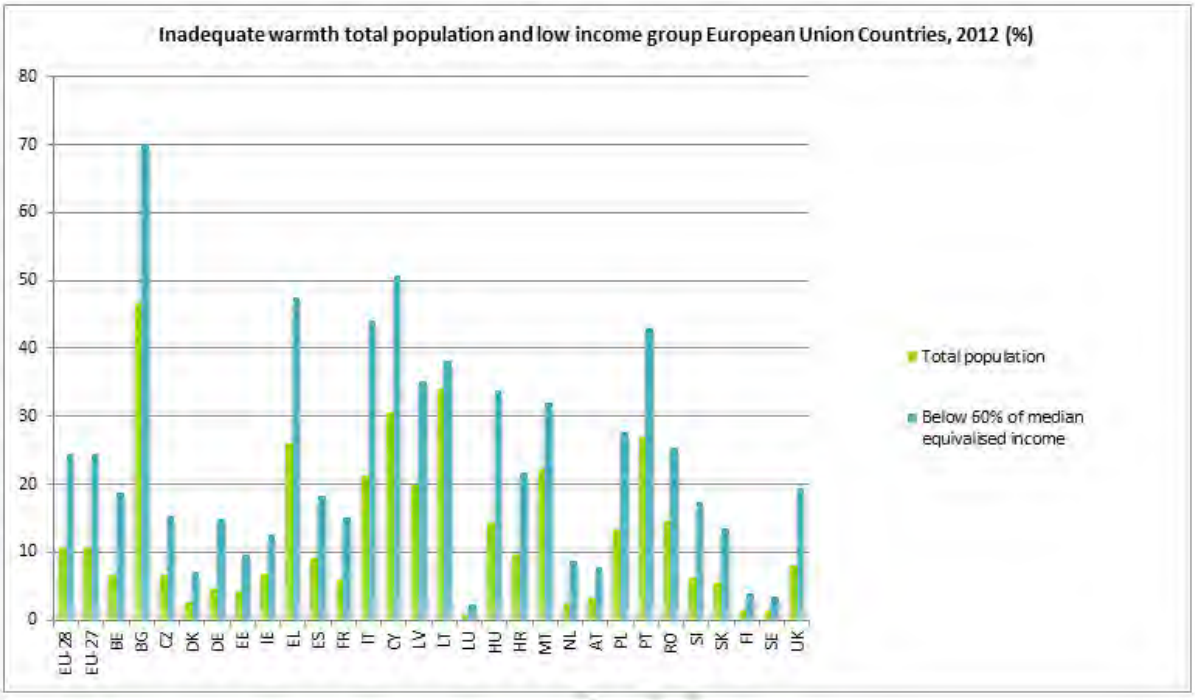


Table 2: EU-SILC data on inability to keep a home adequately warm Member States 2012

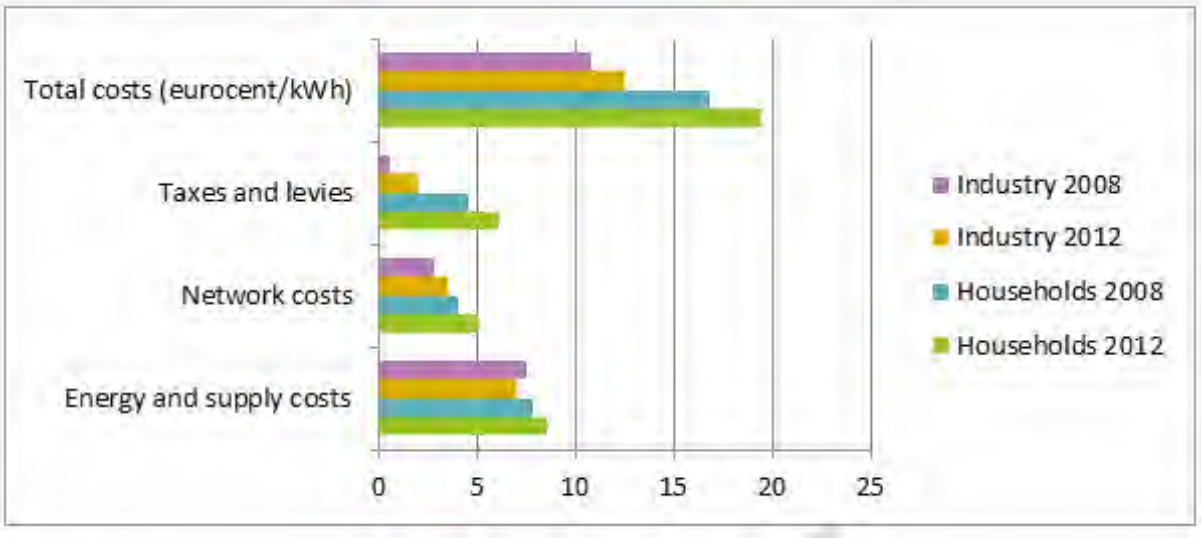


- ***Across the EU energy policy costs are increasing, particularly for households***

As well as the disproportionate impact on low-income households of higher energy prices, the resulting effects on the ability to keep warm and the contrariness of this given their lower overall emissions and existing disadvantage, final consumer energy bills are currently made up of range of factors. Final energy bills include wholesale energy commodity costs, transmission and distribution network costs, metering and other supply costs, supplier margins, VAT and the impacts of social, energy and climate change mitigation policies. In recent years, wholesale commodity prices have been the principal reason for the extent of recent domestic price rises, however, the Commission has also stated that recent rises in prices have also been driven by increases in taxes and levies which are recovered from energy bills to fund programmes instead of being funded out of direct taxation[25].

According to the Commission's recent analysis, since 2008, taxes and levies rose by 36% for households. The following table shows the composition of electricity bills in 2012 compared to 2008. Whilst data for many EU member states is limited, the table shows how households are paying more for each component that makes up the final price compared to industrial consumers. Whilst the table implies that the increases of taxes and levies between 2008 and 2012 are broadly similar between households and industry, it should be noted that the table excludes industry exemptions for policy costs. As noted below, including these exemptions would increase the differential between households and industry further. As the Commission notes 'Member States provide significant tax and levy exemptions for some energy intensive industries which substantially mitigate the tax/levy price rises for these groups'[26] however consistent national data on exemptions is currently not available.

Table 3: Composition of EU electricity bills – households vs industry (2008 – 2012)



Source: *Eurostat data used with Commission Guidance document on Energy prices and costs in Europe produced for the European Parliament, the Council and the European Economic and Social Committee*

Whilst the overall impact of levy-funded policies can be positive depending on the share of the end beneficiaries of the programmes in question[27] and measures to incentivise renewable energy production can help reduce wholesale prices if these benefits pass through to final consumers in the form of lower costs of the energy supply component[28], the cost recovery mechanism is often still inherently regressive. The main reason for this is that most policy's costs are recovered on a 'flat' rate (i.e. without considering how much energy a householder consumes or levels of household income)[29]. As a result, the specific impact of levies on low-income and vulnerable households can be highly regressive. At an EU-level, the impact of this practice is now being recognised. The Vulnerable Consumer Working Group (VCWG) has been established by Commission services (DG Energy ENER) in collaboration with DG Health and Consumers (SANCO). Within a paper on vulnerable consumers produced last year, in reference to increases in taxes and levies, they stated: "It should be noted that this could increase the number of consumers in a vulnerable situation as they will be worse off financially"[30].

- ***Impacts are most acute for low-income households living in the least energy efficient properties***

What the working group does not directly highlight is that this impact can be exacerbated (or through better targeted polices, lessened) by the physical quality and characteristics of the dwelling. Whilst in some Member States the energy efficiency of dwellings of social housing can be high, a disproportionate percentage of low-income households suffer additional hardship because they are also more likely to occupy energy inefficient homes and are less likely to have access to resources to fund heating, cooling and insulation improvements. Consequently, and inevitably, high energy prices whether they are driven by wholesale price increases or taxes and levies currently have an even more disproportionate impact on the poorest households who are often also constrained by their limited access to the competitive energy market, e.g. they are often unable to benefit from cheaper rates such as those available to households paying by online Direct Debit or may not be able to switch suppliers due to high levels of energy arrears or a poor credit history.

- ***Current exemptions for energy intensive industries lead to additional costs for households and contradict the 'polluter pays' principle***

It must be stressed that the particular concern of this study is that some levies can simply exacerbate energy related hardship without necessarily contributing to enhanced environmental (or social) goals. The main concern highlighted in this report is the impact of levy-funded exemptions for certain energy intensive industries from the costs of European or Member States' decarbonisation or industrial policies. As noted above by the Commission, current data on these exemptions across the EU is sparse. As a result, by way of an illustration, the project team have highlighted an example from the UK.

The UK Government has developed an exemption for certain energy intensive industries from the EU Emissions Trading Scheme (EU ETS) and the Carbon Price Floor (CPF)[31]. These exemptions are currently paid for via taxation and are therefore thought to be more progressive as the tax system accounts for differences in income[32]. However, energy intensive industries are now likely to be able to offset their share of the substantial additional costs arising from the UK's planned new long-term 'Contracts for Difference' (CfDs)[33] through an additional consumer levy which will be paid for by other energy consumers, including the poorest households'[34]. Whilst competitive industry is clearly important, these exemptions are applied to many energy intensive sectors which have significant potential to adopt energy saving technologies[35] to reduce their exposure to any increase in energy costs. For example, a report for the European Industrial Insulation

Foundation found that a Europe-wide industrial efficiency programme could reduce heat loss by 66% using cost effective technologies, cutting these large energy users energy bills by 75%, and saving energy equivalent to 15% of 2011 Russian gas imports[36]. This potential is however unlikely to be reached given a current reliance on blanket sector exemptions. Crucially from this report's perspective, this approach will also mean other consumers, including the poorest households, will pay large energy users share of policy costs, despite low-income households emitting substantially less emissions.

More generally, NEA's research has revealed that the EU ETS and the CPF contribution to the average domestic consumer electricity bill of £563 or €692[37] in 2013 was approximately €20. The aggregate revenue the UK Treasury received from domestic electricity consumers for CPF was over €245m, together with revenue from the EUETS, domestic electricity consumers contributed over €614m to the UK Treasury last year. Whilst both these measures (ETS and CPF) will lift the market price for energy and hence the consumer will almost certainly pay more in the short to medium term, the CPF contributes to no overall carbon emission reductions as the total emissions for large power stations is set by the EU ETS cap on generator emissions. As result, as well as sponsoring energy intensive users, the poorest households are contributing to a policy that increases the cost of energy, without a direct environmental benefit. As a result, NEA (along with a number of other campaign partners[38]) have therefore stated that this has led to existing plants being given a windfall and if the CPF is to be retained, the revenue generated from the CPF and the ETS must be recycled back into a much more ambitious energy efficiency programme, targeted at low income households to protect them from these highly regressive impacts[39].

- ***EU products policy can offset policy costs for low-income households but accessibility of current programmes is limited***

Finally, it should be noted that the estimates of how much revenue the UK Treasury will receive are based on the UK Government's own assumptions regarding energy consumption[40]. This includes an assumption that EU products policy will increase the domestic energy efficiency of electric appliances substantially and are expected to deliver an average annual saving of just under €200 per household in 2020[41]. Whilst more efficient appliances can play an important role in offsetting policy costs, many stakeholders have queried the extent to which products policy will deliver these assumed savings. In particular many have questioned the ability of low-income households to realise these savings and be able to afford to upgrade their appliances and white goods with more energy efficient appliances over this period without a capital grant.

As a result, some Member States have sought to introduce national programmes to help households replace less efficient appliances, helping to save these households money, reduce domestic carbon emissions and reducing their exposure to current and future energy policy costs recovered through energy bills[42]. However, whilst some good Member State practices exists, the recommendations note the need for this to be replicated consistently across all European Member States. In order to enhance the accessibility of efficient appliances for low-income households, the recommendations note particular consideration should be given to the promotion and provision of capital grants to help households replace less efficient appliances instead of buying second-hand inefficient appliances.

Europe's Energy Divide - Key Facts

- Despite existing EU targets, over 20% of the population in the EU-28 are at-risk of poverty and the income divide is increasing
- Living conditions are being severely affected by a lack of resources and material deprivation currently stands at over 9% of the EU population
- Energy prices are rising fastest for households; over 10% of the EU's population are struggling to keep their homes adequately warm
- The biggest impact is on the poorest and over 20% of all households in Europe under the poverty line can't afford to heat their homes. This is often exacerbated by a disproportionate percentage of low-income households suffering additional hardship because they are also more likely to occupy energy inefficient homes or are reliant on more expensive fuels (electricity and heating oils)
- Energy taxes and levies have risen by 36% since 2008 for households and in particular the poorest are paying proportionately more for these polices compared to industrial consumers
- Whilst current EU-wide data is sparse, energy intensive industries exemptions appear to be growing despite the significant energy saving potential within this sector, meaning the poorest households could well end up paying a higher share of energy policy costs, despite emitting the least emissions
- It is currently unlikely that low-income households will benefit from existing products policy as they are unlikely to be able to afford to upgrade their appliances and white goods without a capital grant. This also undermines claims that other decarbonisation or industrial policy costs will be offset for this group

3. INTRODUCTION AND OVERVIEW OF THE CURRENT LEGISLATIVE FRAMEWORK FOR LOW-INCOME CONSUMERS

- ## *Introduction*

The overall goal of European energy policy is to ensure "safe, secure, sustainable and affordable energy for all businesses and consumers alike."[43] EU Member States are therefore bound to a number of simultaneous commitments: the establishment of a competitive energy market; enhancing energy security; increasing the share of energy from renewable sources; improving energy efficiency standards and the reduction of emissions that contribute to climate change.

As noted in the introduction, currently, Europe is facing threats to the security of energy supply and increasing concerns about affordability and competitiveness. These challenges are set against a backdrop of responding to the catastrophic consequences of climate change and the need to recover from major economic turbulence. Compliance with this mix of obligations has proven to be both technically and politically challenging and costly. The delivery of these goals also implies a co-ordinated effort at all levels. However, whilst it has previously been acknowledged that Europe will only achieve its objectives (affordability, sustainability, competitiveness and security of supply in energy), through collective action, the political outlook within the European Parliament (following the May 2014 European Elections) may strain this existing consensus[44].

- ## *Recognition of the barriers faced by low-income consumers*

Official recognition of the concept of 'fuel poverty', 'energy poverty' and the broader needs of 'vulnerable consumers' has been gradual. The ***Electricity and Gas Directives***[45] requires each Member State to define the concept of a vulnerable energy consumer and assess the categories of customer who qualify as vulnerable and identify adequate safeguards to protect them. Member States have the flexibility to define vulnerable customers according to their own particular situation and the Commission did not consider it appropriate to propose a single EU-wide definition of 'energy poverty' or of 'vulnerable customers'. In addition, Commission Guidance states that any mechanism adopted to protect vulnerable customers should be in line with competitive market functioning and the Commission services have taken some steps to encourage Member States to adopt appropriate long-term policy solutions, and not only temporary relief. The aim of these policies over the long term is to replace direct income subsidies or discounts for high energy bills with support for improving the energy efficiency and quality of dwellings[47].

- ## *Initial recognition of the impact of policy costs*

In November 2006, the European Commission launched a review of the EU ETS, as required under Article 30 of the ***EU Directive on the EU Emission Trading Scheme***, with the aim of proposing an amended Directive which would improve the functioning of the System from 2013 onwards. The proposed amended Directive was published on 23 January 2008 as part of the European Commission's broader Climate and Energy package (further information below). The purpose of this consultation was to seek views on the Commission's proposals set out in the amended EU ETS Directive and Member State's positions on them. The Commission proposal stated that a proportion of revenues from auctioning (in phase 3) should be earmarked for a range of measures. The Commission specifically listed addressing fuel poverty as a key use of carbon tax revenue, potentially helping to mitigate any price impacts resulting from the policy for low-income households.

In January 2008 the European Commission proposed a binding series of demanding climate and energy targets to be met by 2020, known as the "***20-20-20 targets***". This '***climate and energy package***' was agreed by the European Parliament and Council in December 2008 and became law in June 2009. The current targets are a reduction in EU greenhouse gas emissions of at least 20% below 1990 levels, 20% of EU energy consumption to come from renewable resources (not just electricity) and a 20% reduction in primary energy use compared with projected levels, to be achieved by improving energy efficiency. The EU leaders also offered to increase the EU's emissions reduction to 30%, on condition that other major emitting countries in the developed and developing worlds committed to equivalent targets under a global climate agreement. United Nations negotiations on a final agreement are still on-going[48].

- ## *The role of energy efficiency*

A stated vision of Europe's ambition on energy efficiency had already been in place since 2006 and outlined in the ***European Energy Efficiency Action Plan***[49]. Its objective was to mobilise policy makers and market actors to make buildings, appliances, means of transport and energy systems more energy efficient. The Plan identified six key areas with the highest potential for energy saving (products, buildings and services, transport, energy transformation, financing, energy behaviour, international partnerships) and it proposed 85 actions and measures to be taken at EU and national level – for instance, improving energy transformation, developing economic incentives, and developing energy performance requirements. However, the implementation of the Action Plan only resulted in one third of the actions being completed[50].

National Energy Efficiency Action Plans were also required and were to be drafted by Member States and subsequently approved by the Commission. These action plans presented the national strategy on how each Member State seeks to achieve its energy savings objective(s). The Commission's assessment of the action plans however showed that the Member States' political commitment to energy efficiency on the one hand, and their concrete actions on the other, do not always match. As a result, responding to the call of the European Council of 4 February 2011 to take "determined action to tap the considerable potential for higher energy savings of buildings, transport and products and processes", the Commission developed a new comprehensive Energy Efficiency Plan. Through the combined effects of full implementation of the existing and new measures the EU promised to "transform our daily life and have the potential to generate financial savings of up to €1,000 per household every year; improve Europe's industrial competitiveness; create up to 2 million jobs; and reduce annual greenhouse gas emissions by 740 million tonnes."[51]

- ## *An enhanced framework for energy saving*

The package was accompanied by the aforementioned, non-binding, 20% energy saving target[52]. This was then transposed by the current ***Energy Efficiency Directive 2012/27/EU***[53] which established a requirement for Member States to create energy efficiency obligation schemes (or equivalent alternative measures). Through the revised National Energy Efficiency Action Plans, Member States must revise (or in the case of some Member States, establish) long-term strategies for the renovation of buildings and explain how they will promote energy audits and provide customers with accurate metering and billing information. Member states were also required to prepare a comprehensive assessment to identify the cost-effective potentials to improve the efficiency of heating and cooling, encourage energy efficiency in network configuration, enable and develop demand response and seek solutions to address the landlord-tenant split incentives[54].

This term describes the problem that landlords often do not want to pay for energy efficiency measures when tenants reap the benefits. Overcoming this barrier was considered important as a high proportion of low-income households do not own their own property. Critically for this report, the EU also introduced ***Article 7(7)(a)*** which allows Member States to (or in the text; 'may') include requirements for a social aim within the energy savings obligations they impose, including requiring a share of energy efficiency measures to be implemented as a priority in "households effected by 'energy poverty' or in social housing"[55].

- ***Recognition of the benefits of energy saving***

The impact assessment for the Energy Efficiency Directive[56] showed that the measures contained in the proposal would deliver an additional 151.5 Mtoe of savings in 2020[57]. A macro-economic assessment of the Commission's initial proposals for the Energy Efficiency Directive proposal, using the Energy–Environment–Economy Model for Europe (E3ME), estimated that the Directive will lead in 2020 to increased EU GDP of €34 billion and increased net employment of 400,000 persons.

A more detailed assessment using the PRIMES model[58] estimates that between 2011 and 2020 the Directive could increase investment in energy efficiency (house insulation, energy management, control systems etc) by an average of €24 billion annually, reduce costs for investment in energy generation and distribution of an average of €6 billion annually and reduce Member State fuel expenditure on average by €38 billion annually[59]. As a result, the EU has claimed that the total cost impacts of the Directive over the 2011-2020 period is negative – an annual average reduction in overall spending on energy of about €20 billion[60]. However, these estimates were based on the initial package and are predicated on 100% compliance by Member States.

- ***Additional measures and existing EU funding mechanism***

At the same time, Member States have also indicated that other measures (such as social security polices) are in place within member countries (income support measures like welfare payments and state pensions, energy discounts and social tariffs) to support vulnerable energy consumers. Many Member States have highlighted these policies to illustrate their compliance against requirements of Article 3 of Directives 2009/72/EC and 2009/73/EC. For example, Germany and France have been keen to illustrate that these generic measures are the most appropriate way of guaranteeing the interests of low-income households and energy consumers within their countries[61].

- ***EU Energy efficiency funds***

The European Energy Efficiency Fund (EEEF) was launched in 2011 with a total budget of €265 million, which provides debt and equity instruments to local and national public authorities. The EEEF aims at financing projects in energy efficiency in particular promoting the application of Energy Performance Contracting. A technical assistance grant support (of up to €20 million) is available for project development. In addition, it is also important to highlight that other current EU funding mechanisms exist to help realise the ambition presented within the existing set of energy efficiency policies and targets noted above. Brief overviews of these funds are therefore included on the following page[62].

Table 4: Current EU funding mechanisms

Name	Type of programme	Purpose	Are the beneficiaries low-income energy consumers/ energy poverty mitigation	Total resources committed
Intelligent energy Europe (IEE II)	Grant	Attempt to remove non-technical barriers to adoption of sustainable energy solutions and encourage knowledge exchange and shared learning	The programme has supported projects which can help to further the interests of low-income consumers however the focus of the programme is much broader	€600 million
European local energy assistance (ELENA)	Grant	Support costs for technical development work to implement large scale energy efficiency projects (and local generation)	Public bodies can bring forward projects which could benefit low-income energy consumers	€132 million
7th framework programme (PF7)	Grant	Support pan-European and transnational innovation in research and development (in particular between enterprises and public research organisa-tions) by funding projects up to the pre-competitive demonstration level	Not directly benefiting low-income energy consumers; funding is for SMEs and business and research institute consortia	€2.3 billion for energy
Horizon 2020	Grant	Support development and deployment of sustainable energy technologies and solutions	Projects may help to further the interests of low-income consumers however the focus of the programme is much broader	According to call
ELENA - EIB	Grant	Support development of large-scale sustainable energy in-vestment projects	Not directly; however low-income energy consumers may indirectly benefit from large-scale projects implemented by local authorities and supported by programme	€30 million
Sustainable energy financing facilities (SEFF)	Loan	Provide credit lines and tech-nical assistance to help local banks support commercial and household energy efficiency projects	European Bank for Reconstruction and Development (EBRD) countries only; low-income consumers unlikely to directly access credit	€1.5 billion
EU structural and cohesion funds	Grant, loan, equity, guarantee	Fund investment in energy efficiency, renewable energy and energy infrastructure projects to support economic, social and territorial cohesion	Yes, as funding targets deprived areas (to speed up economic, social and territorial convergence across the EU)	€347 billion
Private financing for energy efficiency instruments (PF4EE)	Loan, guarantee, technical assistance	Address market and regulatory failure discouraging energy efficiency investment by en-couraging, increasing and mainstreaming private financ-ing (from banks etc.) of energy efficiency projects across Europe	Not directly; target is private financial institutions of Member States	Not yet confirmed

Source: *Financing the energy renovation of buildings with Cohesion Policy funding, prepared for the European Commission by ICF International, Hinicio and CE Delft, February 2014.*

Summary of existing framework

- The overall goal of European energy policy is to ensure "safe, secure, sustainable and affordable energy for all businesses and consumers alike." Compliance with this mix of obligations has proven to be both technically and politically challenging and costly

- Official recognition of the concept of 'fuel poverty' or 'energy poverty' and the broader needs of 'vulnerable consumers' is evident but Member States have the flexibility to define both according to their own particular situation

- The Commission specifically listed addressing 'fuel poverty' as a key use of carbon tax revenue, potentially helping to mitigate any price impacts resulting from the policy for low-income households

- Europe's ambition on energy efficiency has been adapted many times. Despite a growing awareness of the many benefits, Member States' political commitment to energy efficiency on the one hand and their concrete actions on the other, do not always match

- Member States can include a social aim within the energy savings obligations they impose, including requiring a share of energy efficiency measures to be implemented as a priority in "households affected by 'energy poverty' or in social housing"

- Some Member States have prioritised income support measures like welfare payments and state pensions, energy discounts and social tariffs to support vulnerable energy consumers as the most appropriate way of guaranteeing the interests of low-income households, despite the Commission encouraging Member States to adopt appropriate long-term policy solutions

- A variety of EU funding streams exists but there are not current funds targeted explicitly at low-income households or addressing or reducing energy poverty

4. HIGH-LEVEL EVALUATION OF THE CURRENT AND EMERGING LEGISLATIVE FRAMEWORK

The establishment of a European Competitive Energy Market and in particular, Member States' response to the high-level requirements of the Third Energy Package has helped to make quantifiable steps towards enhancing the concept of common consumer rights and introducing adequate consumer protection across the EU. It is now recognised that enhancing levels of competition or poorly functioning markets, poor debt policies and selling practices and/or issues such as insufficient choice in payment method requires European oversight and Member State co-operation. As noted above, the Third Energy Package also requires Member States to define 'vulnerable consumers' and take measures to tackle 'energy poverty', a major breakthrough in developing a pan-European understanding of this issue.

- ***Failure to align Member State objectives and mixed compliance and reporting***

  Despite the existing requirement of Article 3 of Directives 2009/72/EC and 2009/73/EC to ensure Member States define these vital concepts and illustrate there are adequate national safeguards to protect these customers (including addressing the combination of the three key factors which explicitly affect 'energy poverty' levels: low household income, poor heating and insulation standards and high energy prices); there is still an unacceptable level of divergence (and unhelpful degree of conflation) between the common comprehension of both 'vulnerable consumer' and 'energy poverty'. NEA believes one of the key implications for the confusion between these two terms is a lack of understanding of which at-risk individuals and groups member states need to report on, and how they must illustrate different groups or individuals are currently supported by their national policies and programmes. This has also resulted in a vast variation of measures to address the situation (regulated prices, social tariffs, assistance to find a cheaper tariff, energy-related payments, grants or obligations to improve home energy efficiency, social security benefits, deferred payment, and simulation of cost savings). Whilst this variation itself is no source for alarm, due to a lack of consistent reporting, details of how these policies operate within each member state is also not clear.

  There is also little overall evidence of how effective national policies and programmes are at providing adequate support to those households that are defined as needing support[63] or indicate how Member States will aim to reform these policies over the long term to respond to the imposition of additional energy cost, with an enhanced focus on increasing the energy efficiency of dwellings.[64] To highlight the scale of these disparities, according to a recent survey[65] only 17 out of 27 Member States have any laws or regulations which can illustrate that the concept of 'vulnerable customers' exists. Within these Member States, a large proportion have then failed to provide adequate information to the Commission on the supportive policies they have in place to address these issues and report on their impact. Desk based research has also shown there are only 10 Member States where an official definition of 'energy poverty' exists[66]. There is therefore a need to ensure Member States are transposing current legislative requirements (and guidance) in regards to vulnerable consumers and energy poverty and within the recommendations NEA has noted how current requirements can be made more explicit within reforms to existing legislation.

- ***Recognition of benefits of energy efficiency but beneficiaries remain unknown***

On energy efficiency, as noted above, the EU has made slow progress in achieving its stated policy goals; this is despite the EU recognising that, in many ways, "energy efficiency can be seen as Europe's biggest energy resource"[67] and more recently that "greater energy efficiency has a key role to play in the 2030 framework"[68]. Member states are therefore keenly awaiting the Commission's examination on progress towards the 2020 energy efficiency targets and clarity on any future Commission initiatives. One of the key aspects for the Commission to address is that the extent and share of current and future beneficiaries across all Member States' domestic energy efficiency programmes is highly likely to remain unknown. Whilst the updated National Energy Efficiency Action Plans are still currently being reviewed by the Commission, according to a previous review of the initial Action Plans by the Council of European Energy Regulators CEERs 2012 Status Review, less than a third of the examined Member States could illustrate where additional measures which aim at supporting energy efficiency improvements (due to previous legislative requirements) were in place[69]. More seriously from the point of view of this study, only six CEER member countries had been able to illustrate that these measures are specifically being implemented as a tool to support vulnerable customers.

- ***Member State discretion could exacerbate the energy divide***

One of the principal legislative shortfalls that has been identified which could exacerbate these concerns in the future is the discretion under Article 7(7)(a) which allows member states to introduce policies that could be funded by all energy consumers (including those that are vulnerable and on the lowest incomes) without requiring a proportion of the activity to be targeted towards low-income households. As noted in the synthesis chapter, this is a key concern and must be addressed[70] and once again, within the recommendations NEA has noted how this can be made explicit within reforms to existing legislation. In addition, whilst the focus of this study has not been to assess individual Member States compliance or the adequacy of their respective national schemes, access to many domestic energy efficiency programmes within member states is subject to specific thresholds to benefit from measures (e.g. vulnerable households living in buildings that were built before a certain date or households below a specific income are eligible). This means that inevitably gaps in provision are evident and the landlord-tenant split incentive barrier continues to represent a challenge for low-income households who do not own their own property.

In many senses, the nature of the limited eligibility of individual member states programmes is a consequence of the need to design programmes that are practical to deliver. However, it is equally true that limited eligibility is also often a reflection of limited national budgets and a need to make sure that applications for assistance do not outstrip allocated funding. Whilst the report authors accept that national and European budgets are finite, one pressing concern is that there is considerable divergence between Member States that have therefore implemented the Commission proposal which stated that revenues from auctioning of permits under the ETS could be earmarked for a range of national policy measures, including enhancing domestic energy efficiency or specifically addressing energy poverty.

Despite the Commission's initial enthusiasm, their recommendation for a binding arrangement for the use of the EU ETS revenues could not be agreed upon. This was because some influential Member States argued that the proposal to hypothecate or 'earmark' the revenue from auctioning would contravene the national Government's principles on the sound management of public finances.[71] As a result, the European Council declaration states that: "Member States will determine, in accordance with their respective constitutional and budgetary requirements, the use of revenues generated from the auctioning of allowances in the EU emissions trading system".[72]

Some Member States have however subsequently used the EU-ETS auction revenue to support improving the energy efficiency of homes. According to a recent report 13 countries in the EU have pledged to return part of the proceeds from the EU-ETS auctions to climate and energy efficiency programmes. The following table illustrates the usage of revenue from auctioning EU-ETS in member states where this information is publicly available. Despite these Member State initiatives however, mandatory reporting on the exact use of ETS revenues is not required by the European Commission and Member States are not required to illustrate whether the effect of this activity will result in reducing energy poverty. Where Member States have used these revenues for alternative purpose, they also do not currently have to demonstrate how the levy-funded energy efficiency obligation under the EED is contributing to a greater investment in improving the energy efficiency of the worst of the existing housing stock and is targeted at households effected by energy poverty.

Table 5: Proceeds and usage of revenue from auctioning EU-ETS in select Member States

Country	Illustrative revenue (Bn€)[74]	% to be recycled	Usage of revenue
Germany	17.8	Almost 100%	Germany's ETS revenues are channelled into the Special Energy and Climate Fund, which provides funding for climate change and energy initiatives, including energy efficiency.
Italy	8.6	50%	50% of the revenues are to be allocated to the "Kyoto fund" (subject to parliamentary approval) financing measures that reduce GHG emissions.[75] This includes low interest loans for SMEs, public authorities and individuals for energy efficiency, renewables and distributed generation projects. [76]
France	5.1	Up to 100%	Recycled for use by the National Agency for Housing (under the 2013 Finance Bill) prioritising energy efficiency refurbishment of buildings, particularly for low-income families.[77]
Romania	3.7	More than 70%	Under the Romanian Government's National Guideline 71% of revenues are intended for projects approved by National Administration of the Environment Fund.[78]
Czech Republic	3.1	50%	50% of ETS revenues are legally recycled for energy efficiency measures, including two thirds of this for the promotion of energy efficiency and renewable energy in homes and apartments through the Green Savings Programme.[79]
The Netherlands	3.1	unknown	Industry compensation scheme to be funded by ETS revenues to cover indirect costs of the ETS. Compensation is conditional on firms making energy efficiency improvements.[80]
Greece	3.1	unknown	An undefined amount of ETS revenue is reported to be directed into a special fund for renewable energy. The remainder of revenues are likely to be used to buy rights for the power sector or pay off the national debt.[81]
Belgium (Flanders)	2.3	unknown	ETS revenues are to be used to fund a proposed industry compensation scheme, subject to EC approval. Firms will have to carry out an energy audit and make economically feasible energy savings to qualify.[82]
Bulgaria	1.9	50% tbc	Law on climate change mitigation that transposes the ETS Di-rective allocates some auctioning revenues (unofficially up to 50%) to projects that contribute to low-carbon development.[83]
Finland	1.5	unknown	The Government Programme, reaffirmed in 2013, states that revenues from the ETS will be directed in part to climate action.[84]
Hungary	1.0	50%	Requirement under Hungarian legislation to spend at least 50% of ETS revenues on climate action – likely to be channelled into the Green Economy Development Scheme, within which housing refurbishment is reported to be a priority.[85]
Estonia	0.6	50%	Environment Ministry announced that 50% of ETS revenues to be recycled for environmental purposes, with energy saving measures in apartment buildings a priority for 2013.[86]
Lithuania	0.4	100%	The Law on Financial Instruments for Climate Change Manage-ment requires that all ETS revenues are directed into a special climate change programme, which provides grants, soft loans and capital investments for climate change projects. In 2013 large investment made in energy efficiency in buildings.[87]

Source: *Table adapted from Prashant Vaze Consulting for Energy Bill Revolution, The economic case for recycling carbon tax revenues into energy efficiency, 2014*

This report returns to the non-binding nature of using the EU ETS revenues for mitigating higher energy prices for vulnerable low-income energy consumers, through domestic energy efficiency, in the following chapter. Finally, this section briefly explores how the emerging detail of the 2030 framework to date has explicitly addressed any of the issues raised above.

- ***Will the 2030 framework addresses these issues?***

In Oct 2013, the European Commission adopted a Green Paper, "A 2030 framework for climate and energy policies". The Commission published its final communication (its 'Framework') in January 2014: *A policy framework for climate and energy in the period from 2020 up to 2030*, with accompanying Impact Assessment.

On greenhouse gas reductions the Commission has stated its preference for a 40% target for GHG emissions compared to 1990, to be shared between the ETS and non-ETS sector. On renewables, the Commission propose a headline target at European level of 27% with flexibility for Member States to set national objectives. Critically, on energy efficiency no target has been confirmed yet; the Commission has noted that this will be subject to a review of the Energy Efficiency Directive (to be concluded later in 2014), with EU leaders agreeing in March 2014 to decide on the overall framework by October 2014 (with an interim meeting in June).

The Commission's proposals have however been challenged by the European Parliament who are seeking a more ambitious approach. For example, MEPs have called for a 30% target for renewable energy and a 40% target for energy efficiency by 2030. The Green Group in the European Parliament have been pushing the Parliament and the Commission to be even more ambitious and to adopt strict targets to cut greenhouse gas emissions by at least 60% by 2030, as well as supporting the need for a 40% target for energy efficiency by 2030. As noted in the introduction, the case for a 40% energy saving target for 2030 is strong, with the costs of this investment being offset by savings of €1tr-€2tr during 2020-2030 and boosts to competitiveness lowering net energy costs for households and industry by over €239 billion annually by 2030.

The Commission have subsequently acknowledged that "compared to the Reference case, the scenario led by a 40% GHG reduction in 2030 would create on the aggregate level of around 0.7 million additional jobs (645,000) and the scenario based on 40% GHG reduction, ambitious explicit energy efficiency policies and a 30% renewables target would generate 1.25 million additional jobs in a 2030 perspective, compared to the Reference scenario"[88]. As noted above, Council leaders are therefore keenly awaiting the Commission's examination on progress towards the 2020 energy efficiency targets and clarity on any future Commission initiatives, however concerns are increasing that these two considerations will not be integrated and could result in a two track process. In addition, as noted in the following section, the lack of substantive details on the contribution non-traded emission reductions will make to the proposed GHG targets is a primary concern, as is the lack of any clearly defined role of domestic energy efficiency targets within any overall agreement on energy saving.

As noted throughout this report, these flaws must be addressed urgently to ensure Europe's energy transition is not only cost-effective but also benefits all households. The following section therefore considers the benefits of enhanced action (especially on enhancing the role of energy efficiency improvements targeted at low-income households). This evidence base is provided to support the ambition presented in the final recommendations.

5. SYNTHESIS AND THE BENEFITS OF ENHANCED ACTION

Through the overview and evaluation to assess the adequacy of the current framework above, it would now be possible to make recommendations on how the development of a new form of target or ambitious legislative changes can complement or enhance the existing framework. However, before setting out the report's final recommendations, it is first important to assess how these issues can be addressed without creating further incremental (and potentially) misaligned policy signals to Member States and consider the advantages of any enhanced action.

NEA's approach to quantifying benefits of enhanced action

Whilst NEA has sought to evaluate the potential for each area, it must be noted that quantifying these has required the use of existing information and data and this assessment is also based on a number of assumptions with regards to the success of a policy if it was implemented at an EU level. Where these issues exist, NEA has tried to note any limitations within the end notes of this report. In addition, in order to illustrate these benefits clearly, it is important to distinguish and segment these in the following ways.

- **EU Community benefits**

  This describes European-wide benefits such as meeting existing EU-wide commitments more cost-effectively (including targets to reduce EU greenhouse gas emissions, reduce EU energy consumption or generate energy from renewable resources compared with projected levels) or helping to reduce EU budgets. EU Community benefits may also include enhancing the reputation of the Commission and European Parliament overall or helping to address current gaps in provision. It is also hoped that it is possible to illustrate (but hard to quantify) that enhanced coordination at an EU-wide level may result in a more effective approach compared to business as usual or a complete reliance on Member State's own discretion to undertake any activity.

- **Member State benefits**

  This set of benefits attempts to assess the accrual to Member States of macro benefits which could be captured by enhanced action. Whilst it is difficult (and sometimes impossible) to monetise many elements, where possible, NEA has assessed job creation opportunities, suggested how the action could result in money being re-circulated into the local economy and explored how health benefits that could be triggered as a result of the intervention could reduce national spending. The report also includes a further annex (annex 2) which provides further analysis illustrating and monetising health improvements.

- **Individual benefits**

  As well as noting many positive health impacts, 'individual benefits', explores the potential for any implied reduction in fuel bills or an increased ability to pay for other essential items which could enhance the wellbeing of individuals or households.

Benefits of an EU-wide understanding of the problem: 'energy poverty'

The previous section illustrated how Member State discretion in the implementation of Article 3 of Directives 2009/72/EC and 2009/73/EC has led to an unacceptable level of divergence and conflation between the common comprehension of both 'vulnerable consumer' and 'energy poverty'. It is argued that this has led to significant confusion between these two terms which has resulted in a lack of understanding of which at-risk individuals and groups member states need to report on and how they illustrate different groups or individuals are currently supported by their national policies and programmes. The report has also highlighted that energy poverty or fuel poverty is not comprehended at all in some Member States and not measured in a consistent way across Europe.

In regards to measurement, France for example states that a person is considered fuel poor: 'if he /she encounters particular difficulties in his/her accommodation in terms of energy supply related to the satisfaction of elementary needs this being due to the inadequacy of financial resources or housing conditions[89]. In Ireland, 'a household is considered to be energy-poor if it is unable to attain an acceptable standard of warmth and energy services in the home at an affordable cost' if, in any one year, it spends more than 10% of its disposable income on energy[90]. This second qualifying element is related to the definition of defining fuel poverty that until last year was how fuel poverty was defined across the United Kingdom[91]. Under this definition, a household is said to be fuel poor if it needs to spend more than 10% of its income on fuel to maintain a satisfactory temperature in their dwelling (usually 21 degrees for the main living area, and 18 degrees for other occupied rooms).

Using this approach, and as a result of the emerging evidence of the long term effects of cold homes and a growing political pressure to act, in 1999, a UK wide Inter-Ministerial Group on Fuel Poverty was set up to take a strategic overview of the relevant policies and initiatives with a bearing on fuel poverty. The Warm Homes and Energy Conservation Act 2000 followed and facilitated the first UK Fuel Poverty Strategy published in November 2001. What is relevant to note from this example is that the initial recognition of the issue of cold homes prompted an enthusiasm for a joined up approach. More recently however, following the findings of the Independent Review of Fuel Poverty in England led by Professor John Hills[92], the Westminster Government confirmed that it has adopted a new and distinctive definition of fuel poverty compared to the other nations within the United Kingdom. The Low Income High Cost (LIHC) measurement of fuel poverty will now be used as the primary method of defining fuel poverty in England. The LIHC definition consists of two parts; the number of households that have both low incomes and high fuel costs and the depth of fuel poverty amongst these households.

It is not the attention of this section of the report to explore this definition in detail or compare the merits and drawbacks of differing approaches, what is important is that by explicitly focusing on the overlap between low incomes and energy inefficient properties Professor Hills emphasised that: "Tackling fuel poverty offers a multiple pay-off: better living standards and conditions for people with low incomes, an improved and more energy efficient housing stock, fewer winter deaths and reduced costs for the NHS"[93].

It is equally critical to highlight that in spite of changes to the definition in England, the factors that affect the level and depth of fuel poverty remain largely unchanged. Fuel poverty, however defined, is principally driven by a combination of factors including the cost of fuel, the level of household income, the physical quality and characteristics of the dwelling and the degree of vulnerability of the occupants of that dwelling. Whilst the distribution of fuel poverty may change depending on how it is measured or defined, this combination of factors is most prevalent amongst vulnerable households including those on low incomes, households with children under the age of 16, households with disabilities or suffering from a long-term illness and households containing older people. The consequences of failing to act are equally unchanged.

Therefore, leaving aside definitions or respective nations' policies to address the situation as well as the obvious need to rely on different national income and housing survey information[94] to assess the scale of the problem, what is important is that it is well understood that a number of health conditions – including cardiovascular and respiratory diseases – are caused or exacerbated by living in cold conditions[95] and that energy poverty is therefore a significant (and growing) public health problem across Europe which contributes to considerable stress, illness and to excess winter mortality and cold-related deaths. According to a 2011 Report from the World Health Organisation[96], deaths from cardiovascular diseases are directly linked to exposure to excessively low indoor temperatures for long periods. It appears that 50-70% of excess winter deaths are attributed to cardiovascular conditions, and some 15-33% to respiratory disease. As a result, an estimated 30% of winter deaths in Europe are caused by cold housing[97]. Evidence has also shown that in the United Kingdom every 1 degree drop in average temperatures below 18 degrees results in an average of 8,000 extra deaths[98].

In addition to the ill effects of cold, it is also important to recognise that if a household is unable to afford to keep their property cool in summer time, this too can prompt serious illness such as heat exhaustion and heatstroke. In a report on excess mortality in Europe during summer 2003 produced for the EU Community Action Programme for Public Health[99], mortality in this year was assessed at the request of the European Union. The 15,000 additional deaths in France caused by the heat wave in August 2003 was already known however this new analysis highlighted the scale of heat-related deaths across Europe. When compared to the 1998-2002 period, more than 80,000 additional deaths were recorded in 2003 and in August alone, deaths caused by extreme heat were recorded as being 11,000 more than in June, more than 10,000 in July and nearly 5,000 in September. Therefore, as with excess winter deaths, many of these deaths could be attributed to an unequal or diminished ability to afford appropriate energy services to maintain an adequate indoor temperature within the home[100].

Through this analysis it is possible to show that, whilst accepting that Member States have differences in how energy poverty is defined and measured or significant differences in temperature or climate, there should be a EU-wide aim to understand and seek a common understanding of the ill effects and root causes of 'energy poverty'. If this can be achieved, NEA believes that this would trigger key Member State and individual benefits.

Within the recommendations the project team have therefore provided a set of wording which would secure a common understanding of what is meant by 'energy poverty' at an EU level (without imposing a harmonised definition). By following this approach and securing this understanding within EU legislation the intervention would aim to:

1. Ensure that the EU recognises a European household's natural right to have equal access to the benefits of adequate levels of warmth (or cooling) within their home and that this is needed to protect their health and wellbeing

2. Address a lack of understanding of which at-risk individuals and groups Member States need to define and subsequently report on how they will protect these different groups through their own national policies and programmes

3. Acknowledge that energy costs have a disproportionate impact on low-income households and that the energy efficiency of the dwelling will determine a household's ability to convert income into adequate warmth

4. Allow member states to retain discretion to adopt either own (relative or absolute) interpretation of the householders effected by energy poverty whilst specifying the criteria that must be fulfilled to demonstrate compliance with existing legislation

Whilst there would be a time implication associated with seeking approval and consensus on any exact form of wording, once in place, it would be possible to align differing perceptions of the 'problem' and illustrate how a common understanding of tackling these issues can be achieved and this would potentially result in a more concise and efficient approach to meeting current requirements under existing legislation. The main EU Community benefits would be to clarify current Member State requirements and this would in turn help the Commission and European Parliament illustrate its effectiveness overall, as well as potentially helping to highlight current gaps in provision within Member States. However, whilst progress to secure this outcome would be welcome, this consideration alone must not delay the urgent need to respond adequately across Europe to tackle the issue or its root causes. These more fundamental issues are addressed within the following section(s).

Benefits of a more concise and ambitious legislative framework to support the long term eradication of energy poverty

The previous analysis within the evaluation of the current and emerging legislative framework highlights that current requirements and protections within EU legislation and regulations for households at-risk of energy poverty consist of a fragmented and loose policy framework. Whilst many important 'legislative hooks' exist (in particular Article 7(7)(a) and proposals to encourage revenues from ETS auctioning to fund measures for fuel poverty alleviation), the extent of discretion allows Member States to introduce policies that could be funded by all energy consumers, critically, without requiring a proportion of the activity to be targeted towards low-income households.

Whilst NEA has considered the option for a 'recast directive' to pool the current protections that do exist into one piece of discrete legislation, in evaluating this option, stakeholder feedback indicated that there is a risk of a 'ghettoisation' of the links between energy poverty and the EU's broader energy policy priorities. For these reasons this option has been discounted. Within the recommendations NEA has therefore suggested modifications to the existing legislative hooks which would provide a more concise and ambitious approach using the existing legislative framework.

In particular, the recommendations note how it would be possible to amend the Energy Efficiency Directive to ensure a significant proportion of energy efficiency measures (from any Member State who decides to fund their energy efficiency obligations from a levy) would need to direct a percentage of the activity at low-income households. This proposal aims to address the regressive impacts that would be seen without an intervention. As noted earlier within this report, particularly in the section entitled Europe's 'Energy Divide', energy policies that are paid for by levies on consumer bills will have the practical impact of increasing energy prices (and energy poverty) for those that don't benefit directly from these programmes. The regressive nature of the funding mechanism (as well as the other factors highlighted within this report) therefore requires that policies (and policy makers) seek to ensure that financially disadvantaged households receive an equitable share of the benefits.

At the present time, the share of beneficiaries of the Energy Efficiency Obligations, across all Member States, are not known. NEA have therefore also made a recommendation below that DG Energy (ENER), alongside DG Health and Consumers (SANCO) must review the extent to which current National Energy Efficiency Action Plans specifically support low-income energy consumers. However, enhancing the evaluation process of existing NEEAPs would not, in itself, mitigate the regressive impact of uniform levies on consumer bills or address the lack of parity between social and environmental objectives within Member States (or within EU policy-making overall). In addition to amendments to the Energy Efficiency Directive, NEA also proposes a revision to the ETS Directive, which would require Member States to submit a detailed analysis to the Commission illustrating how they have investigated the use of carbon revenues to address energy poverty (under certain conditions). NEA also proposes that Member States who have used these revenues for alternative purposes, must also demonstrate how any levy-funded energy efficiency obligation directed at households affected by energy poverty is contributing to a greater investment in improving the energy efficiency of the worst of the existing housing stock and is being directed at households effected by energy poverty.

These recommendations illustrate how existing legislation can be amended to minimise the risk that households that use less energy could pay for more energy profligate households to reduce their energy consumption and carbon emissions, however NEA would also argue there is a need to develop a more deliberate policy framework (whilst taking care not to undermine the links between energy poverty and the EU's broader energy policy priorities). Within the recommendations NEA has therefore recommended that this activity (amending existing legislative safeguards to make the current framework more concise and effective) should also be supported by a call for binding EU-wide minimum energy efficiency standards for low-income households (alongside the emerging 2030 energy targets which are currently being developed). The exact form of this target is deliberately not specified but a possible approach to the target is considered in the following section. However, before exploring this proposed additional target in detail, it is important to illustrate how these ranges of interventions could bring multiple benefits.

- ***Increase energy security***

  As noted in the introduction, meeting energy needs through increased domestic energy efficiency can reduce the EU's dependence on imported fossil fuels and helping to increase EU's energy security. Energy imports negatively impacts the EU's trade balance and energy imports accounted for more than €1 billion per day (around €400 billion a year) in 2013 and more than a fifth of total EU imports. The EU imports more than €300 billion of crude oil and oil products, of which one third from Russia[101]. Without further action, this cost will continue to increase and the EU Commission expects fossil fuel import prices to continue to increase from 2010 to 2030 for oil from $80 per boe to $121 (€60 to €93), for gas from €38 per boe to €65 and for coal from €16 per boe to €24[102]. However, targeted energy efficiency measures can deliver material reductions to this import dependence and an EU-wide building retrofit programme could cut gas use by an amount equal to circa 80% of Russian imports[103].

- ***Economic growth and local job creation***

  The home energy efficiency market can stimulate both construction and manufacturing industries, creating jobs in every Member State. Within the energy Efficiency Plan it was stated that up to 2 million jobs could be created or retained by 2020 by energy efficiency measures in Europe. Whilst it has not been possible to model the job potential of each of the proposed legislative reforms[104] as noted below, NEA has assessed the labour skills and time taken to install a range of energy efficiency improvements that could be triggered by an additional EU energy efficiency fund. This fund could support attempts to reduce the youth unemployment by creating additional jobs for over 90,000 low-skilled workers.

  This analysis reveals the importance of the installation of low cost energy efficiency measures leading to local labour opportunities - often SMEs – which can spur regional economic growth without requiring significant up-skilling[105]. The macro jobs impacts are obviously specific to each country and it is hard to provide an aggregated view, however an analysis of the KfW programme in Germany illustrates that an energy efficiency employment stimulus can be cost neutral with every €1 of public funds spent on the KfW Energy-efficient Construction and Refurbishment programme in Germany in 2010, over €15 was invested in construction and retrofit, and more than €4 went back to the public finances in taxes and reduced welfare spending[106].

- ***Reducing energy bills and helping to eradicate fuel poverty***

Domestic energy efficiency is one of the few sustainable ways to permanently reduce household energy bills. As noted in the previous section, the combined effects of full implementation of the existing and new measures the EU promised on energy efficiency were have the potential to generate financial savings of up to €1,000 per household every year. In addition, policies that improve the efficiency of the housing stock are more cost-effective and longer-term for tackling energy poverty than energy price policies and income support policies[107]. NEA has therefore investigated the 'individual benefits' and savings associated with an EU-wide programme which provides low-cost intervention measures to the circa 20% of the population in Europe under the poverty line that can't afford to heat their homes (circa 30 million individuals). To do this, NEA has developed an assessment of costs and savings for a standardised package of measures[108] to be installed in three property types known to be prone to energy poverty. The three property types are:

1. Two-bed mid-floor flat with electric storage heaters and immersion;
2. Three-bed semi-detached house with gas;
3. Three-bed semi-detached house with oil and immersion.

The measures chosen for the standardised package were selected on the basis they cost less than €30 per measure[109], take less than one hour to install per measure and require basic to medium skills to install that make use of only simple tools, for example an Allen key or screwdriver. The emphasis on low cost measures is deliberate as they are able to be installed without requiring significant new skills or training and therefore present opportunities for local, unskilled labour which could boost local employment and regional economic growth, without the overheads associated with training employees to undertake extensive heating or insulation measures.

For the standardised package, the total cost (labour and kit) is estimated at circa €150. The time taken to fit the measures is estimated at five hours per property. Presented below are in table 5 are the sample of modelled low cost energy efficiency measures. Table 6 shows annual cost savings (€[110]) and annual carbon savings (kg CO_2) for each measure[111] across the three property types[112]. Table 7 shows the total cost and carbon savings for the standardised package across the three property types. The payback period to realise the total cost savings (based on the total cost of the package) is also represented.

Table 6: Sample of modelled low cost energy efficiency measures

	Low-cost measures	Typical number of units installed per property	Total install cost[2]
1	Radiator reflector panels	2	€12.84
2	External door stops draught proofing	1	€7.74
3	External door threshold draught proofing	1	€9.38
4	Letter box lagging	1	€30.10
5	Pipe lagging	1	€9.58
6	Hot water insulation jacket	1	€9.88
7	Energy efficient light bulbs GLS-CFL	5	€12.10
8	Standby-off plug	1	€8.18
9	Carbon monoxide alarm (basic)	1	€12.68
10	Setting heating controls (not providing new ones)	1	€6.00
11	Check Economy 7 meter times	1	€1.20
12	Per property price[3]	1	€9.00

Table 7: Cost and carbon savings by low cost measure across three property types

	2-bed mid-floor flat		3-bed semi with gas		3-bed semi with oil	
Measure	**Saving €/ annum**	**Saving kg CO_2/ annum**	**Saving €/ annum**	**Saving kg CO_2/ annum**	**Saving €/ annum**	**Saving kg CO_2/ annum**
1	N/A	N/A	**6**	**20**	**9**	**26**
2	N/A	N/A	**3**	**12**	**5**	**14**
3	N/A	N/A	**3**	**12**	**6**	**14**
4	N/A	N/A	**2**	**0**	**2**	**4**
5	N/A	N/A	**30**	**96**	**53**	**153**
6	**55**	**164**	**95**	**311**	**172**	**505**
7	**57**	**173**	**57**	**173**	**57**	**173**
8	**3**	**11**	**3**	**11**	**3**	**11**
9	N/A	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	**43**	**141**	**60**	**175**
11	**33**	**0**	N/A	N/A	N/A	N/A

[2] Install cost consists of the average of the minimum and maximum labour cost plus the cost of the total typical number of units installed per property. Unit prices are exclusive of VAT.

[3] Per property works price consists of the cost to 'get through the door', assess a property and explain the measures.

Table 8: Cost and carbon savings for a standardised package of low-cost measures across three property types

	2-bed mid-floor flat			3-bed semi with gas			3-bed semi with oil		
	Saving € / annum	**Saving kg CO_2/ annum**	**Cost € / kg carbon saved per annum**	**Saving € / annum**	**Saving kg CO_2/ annum**	**Cost € / kg carbon saved per annum**	**Saving € / annum**	**Saving kg CO_2/ annum**	**Cost € / kg carbon saved per annum**
Min saving	47	141	c. 0.88	106	340	c. 0.37	192	556	c. 0.22
Max saving	265	650	c. 0.22	378	1213	c. 0.10	543	1593	c. 0.05
Mean saving	**156**	**347**	**c. 0.36**	**242**	**777**	**c. 0.16**	**369**	**1075**	**c. 0.12**
Max payback (nearest year)	3.2			1.4			0.8		
Min payback (nearest year)	0.6			0.4			0.3		
Mean payback	**1.9**			**0.9**			**0.5**		

What these findings show is that for a relatively short payback period (less than two years for a 2-bed flat, less than one year for a 3-bed semi with gas and less than half a year for a 3-bed semi with oil) a package of low-cost measures can achieve considerable carbon and cost savings. Whilst this report recommends a deep retrofit is required for low-income households who fall below the specified minimum energy efficiency standards discussed below, the mean cost and carbon savings attributed to the package of low-cost measures across the three property types ranges from circa €150 to €450 per annum and from 300 to 1000 kg CO2 per annum. This suggests that if this package of measures was delivered within the population in Europe under the poverty line who can't afford to heat their homes, this could have both economic and environmental benefits in the form of reduced energy bills for low-income customers and reduced carbon emissions.

- ***Linking energy efficiency to attempts to reduce the youth unemployment***

As a result of this analysis, and the previous observations that it is unlikely low-income households will benefit from existing products policy without additional promotion of existing initiatives or new capital grants to be able to afford to upgrade their appliances and white goods, NEA recommends that a new EU fund should be established. This new initiative would aim to finance low cost energy efficiency measures within low-income households. Whilst the fund could help Member States deliver the proposed minimum energy efficiency standards (explored below) the new fund should be additional to existing EU funding mechanisms or those that are available at Member State level (ETS revenue, other carbon taxes and energy efficiency obligations). It is also suggested the fund should be a collaborative between DG Energy, DG Health and Consumers and the DG Directorate General for Employment, Social Affairs and Inclusion. The total funding sought would be circa €5bn and this would be paid for by restructuring of existing energy funds and ring-fencing a share of the European Social Fund and contributions from national funding.

Given the labour skills identified above, this fund could support attempts to reduce the youth unemployment by creating jobs for over 90,000 low-skilled workers[113]. This additional work is highly needed given youth employment is currently more than twice as high as the rate for adults (23.6% in comparison to 9.5%, in November 2013)[114] and could compliment the jobs that could be created or retained by 2020 as a result of the existing energy efficiency policies and measures across Europe. In the short term, there may also be possibilities for introducing a trial programme[115]. This preliminary feasibility study could be funded through the EU budget on the initiative of the European Parliament, who could subsequently propose pilot projects.

- ***Ensuring low-income households and communities are engaged in the transition to a sustainable energy economy***

  One advantage of an enhanced focus on energy efficiency actions to increase support for low-income households that is often overlooked is how projects can help illustrate to citizens how existing and planned climate and environmental targets and aspirations can, and must, be delivered at the same time. Addressing the social consequences of higher energy bills has led many groups to advocate community-led approaches which equally stress the importance of schemes where residents feel that the activity is being done with or by a community, rather than just done to a community. By helping communities to empower themselves, for example by providing employment to a number of people through energy efficiency activity or an energy cooperative installing community-based generation projects, community-wide energy schemes get people engaged and talking about their area and experience of the scheme. The attitudes displayed during these interactions are often highly positive and generally strengthen community bonds, develop social capital and may prompt further community discussion and enhance confidence about taking further action to improve the local area.

- ***Rebound effects and positive health gains***

  Whilst the savings that can be achieved from domestic energy efficiency interventions noted above are significant, it must be noted that it is possible that these benefits could be reduced if the intervention prompted an increased consumption and expenditure for some low-income households, the so-called 'rebound' effect. This effect is often overstated and perceived negatively as it leads to fewer reductions in energy demand than anticipated and it is important to note:

  - The amount of take-back or rebound from improved insulation or a better boiler is correlated with the temperature of the home before improvements. Unfortunately, there is little EU data about the temperatures actually found in the homes of the low-income households, but according to the Department for Energy and Climate Change (DECC) it is likely the amount of take back is c. 33% as a maximum (rather than an average). As a result, these interventions still deliver cost-effective additional, non-traded, emission reductions.

  - Even within the coldest homes, there are cost-effective carbon and monetary savings because the fuel poor want the extra money (to pay for other essentials), as well as the extra warmth. The rebound in cold homes also only happens with the first energy efficiency improvements. Once the home has reached a higher level of warmth, there will be less rebound.

  - Even in the warmest homes, there is sometimes a small increase in temperature and the lower level of take-back in warmer, better-off households can result in a different form of rebound with the money that they save possibly being spent elsewhere in the economy resulting in additional energy-related expenditure.

  - The rebound effect is less likely to be found in relation to electricity, for instance from more efficient lights and appliances. There is also less of a rebound, if any, with hot water use, but this has not been properly researched.

- In addition, some low-income households, facing the stark choice between spending what they need to heat or cool their home adequately and either falling into debt or ill-health may continue to ration their energy use and spend any savings on purchasing of other necessities, such as food. This in turn could prompt increased spending in the local economy etc. However, in order to obtain an accurate picture of the actual behaviours that could be prompted by energy efficiency interventions, each property would need to have an energy survey and a real temperature analysis, income assessment and actual energy usage would need to be monitored before and after interventions. There are of course practical and cost limitations in following this approach. However the EU's ambitious plan for 80% market penetration of smart meters by 2020 may support a more accurate picture of the actual behaviours that are prompted by an energy efficiency intervention.

- ***Illustrating and monetising health improvements***

The section above highlighted that energy inefficient homes are not only expensive to heat but can also damage the health of their occupants and noted that cardiovascular and respiratory diseases are caused or worsened by living in cold conditions. The report also noted the ill effects of being unable to keep a property cool in the summer months. There are however other implications (or costs) that are less well understood and difficult to ascertain.

For example, the increased chances of carbon monoxide poisoning (acute and chronic) if a heating system is old or inefficient or the increased probability (and related cost) of a fall or accident if the householder is not kept warm. There are also implications of poor personal and domestic hygiene, food poisoning or unbalanced diet (poor nutrition/obesity) if a household does not have access to electricity or gas for cooking, refrigeration, cleaning and bathing. However, despite the lack of a comparable evidence base and the difficulties of demonstrating an intervention can directly result in these avoided costs, the latter factors could equally be used to enhance the cost benefit for improving the ability of poorer households to afford to appropriately maintain an adequate in door temperature within the home.

Annex 2 of this report therefore reviews the available evidence drawn from relevant experts in this area and particularly focuses on how various studies have sought to monetise health improvements to support the case for the actions recommended within this report.

Binding EU-wide minimum energy efficiency standards for low-income households

The proposals above illustrate that by modifying existing legislation and potentially creating a new EU funding mechanism it is possible to use existing (albeit, enhanced) legislative hooks to improve the energy efficiency of low-income households and, as far as possible, ensure that they are not left behind other households. However, the required level of ambition within this report extends well beyond the aforementioned package of low-cost measures and it is clear that the opportunities that exist to support these households through cost-effective energy efficiency actions are far greater.

The report's authors believe that there is a considerable risk that 'deeper' retrofit opportunities which include packages of energy efficiency measures such as modern central heating boilers, heat pumps, cavity wall, solid wall and loft insulation and double glazing may not be captured without specifying the level of ambition required within Member States' existing energy efficiency programmes or national energy saving targets. This may lead to major Member State disparities. The project team have therefore noted the opportunity to introduce a new form of target which will ensure that Member States improve the experience of the poorest households living in the poorest quality housing in line with their wider objectives of saving energy, promoting growth and decarbonising the housing sector.

Energy efficiency is measured by Energy Performance Certificates (EPCs)[117], with 'A' representing very high performance and 'G' very poor. Currently, as a result of tightening building standards across many parts of Europe[118], new homes built today have an average energy efficiency level of band C to B and need to be 'nearly zero-energy' by 2021. Within a previous paper 'Funding the Green New Deal: Building a Green Financial System[119]' the authors suggested Europe should replicate the Japanese Top Runner programme where best in class energy performance automatically becomes a binding standard with a time lag so manufacturers of goods and vehicles are constantly having to improve their energy efficiency. Using this same logic (and the supportive evidence base above), it would be possible for the 2030 targets to introduce a new requirement on Member States to raise all homes occupied by low-income households up to an EPC of band C or B by 2030[120].

The proposed target is deliberately expressed as a minimum standard, rather than average. The simple reason for this is that there are considerable risks that low-income households will typically lag behind any 'median' or 'mean' based approach (for the reasons outlines within the Energy Divide section) and there is also considerable evidence that regulated minimum standards work effectively, for example:

- The introduction of minimum standards for gas central heating boilers in 2002 has reduced the average annual fuel bill by over €100[121]

- The EU ban on the use of incandescent bulbs followed a minimum standard approach and it is estimated that this will save EU households more than €30 over the lifetime of each bulb

- The UK Decent Homes Programme, which set minimal energy performance standards led to higher standards in social housing than private housing. Most social housing providers improved homes to standards substantially higher than the minimum required.

- ***Costs and benefits***

Given limited resources it has not been possible to accurately estimate the cost for meeting these proposed requirements across Europe. However, modelling work under taken within the UK by the End Fuel Poverty Coalition, which proposes the adoption of minimum energy efficiency standards in England, shows that the investment required to meet ambitious targets would cost circa €50 billion over 16 years (based on a January 2015 start date), or just under €3.7 billion pa if costs are spread evenly over the 16 year period[122]. It would cost circa €1.25 billion pa to meet the interim EPC D target by the end of 2020 at an average cost per household of €57,00, with 1.34 million households helped. €1.25 billion pa was roughly equivalent to the notional annual spend under the energy efficiency obligation (the Energy Company Obligation programme which operates across Great Britain), although much of the programme is not specifically targeted at low-income consumers and the programme has recently been reduced in size[123]. A more ambitious budget of circa €2.5 billion pa would enable the homes of all low-income households in England to be improved to EPC C by 2025, while circa €3.5 billion pa is sufficient to improve homes as close as possible, given technical limitations, to EPC B by 2030. These budgets assume a cap on grants of approximately €12,500[124].

The investment above includes the installation of such measures as modern central heating boilers, heat pumps, cavity wall, solid wall and loft insulation and double glazing. Whilst these costs are substantial it is argued that this must be set against the estimated cost to health services of treating the symptoms of energy poverty and the reduction in economic activity due to time off work arising from cold-related ill-health and the circa €5bn pa the UK Government will receive from carbon taxes by 2020. In addition, research has shown that an ambitious programme to improve the homes of fuel poor households would have substantial economic benefits including 130,000 additional jobs, boosting GDP by 0.2% and it is claimed that this would be more cost-effective than almost any other comparable investment programme[125].

If this approach was introduced at a European level, these benefits would be amplified. In addition, one final benefit would be that these savings would be made outside of the traded sector; this means that any carbon saved would be additional to the cap placed on total emissions from the power sector in phase 3 or beyond. As a result, the report recommends the introduction of EU-wide minimum energy efficiency standards for low-income households should be a key aspect of the review of the Energy Efficiency Directive (which is being concluded later in 2014) and would create a clear framework to help to end the misery and suffering caused by the poorest households also living in the coldest and most expensive to heat homes.

6. REPORT RECOMMENDATIONS

The following series of recommendations seek to capture the benefits highlighted hitherto and address the principal concerns and benefits that have been illustrated within this report. As noted in the final section 'Conclusions and next steps', it is hoped that these recommendations will now be acted on by a range of different parties.

Recommendation 1

The EU Commission has not proposed setting a binding target on energy saving for 2030. In order to increase energy security by reducing the EU's dependence on imported fossil fuels, reduce the EU's trade balance, reduce the costs of meeting the EU's other energy objectives, stimulate economic growth and local job creation, reduce energy bills and capture positive health gains whilst helping to eradicate energy poverty and engaging these households in the transition to a sustainable energy economy; the EU must introduce a 40% target for energy saving by 2030.

Recommendation 2

There is a need to secure a common understanding of 'energy poverty' at an EU level. This should be achieved by inserting the following generic EU definition within the primary legislation where the term is used: "Energy poverty is a diminished or unequal ability of an individual (or groups of households) to convert a low income into adequate internal temperatures within the dwelling to protect the health and wellbeing of the occupants".

Recommendation 3

Member States should increase the promotion and accessibility of programmes to help low-income households replace less efficient appliances, helping to save these households money, reduce domestic carbon emissions and reduce their exposure to current and future energy policy costs recovered through energy bills. Particular consideration should be given to provision of capital grants for low-income households.

Recommendation 4

DG Energy (ENER) must actively review the specific attempts made by Member States to reduce the extent and depth of energy poverty within National Energy Efficiency Actions Plans. In particular:

- DG Energy (ENER), alongside DG Health and Consumers (SANCO) must review the extent to which Member States have carried out a robust analysis which demonstrates the impact the proposals within NEEAPs have in mitigating or eradicating energy poverty and highlight the share of activity that is deliberately targeted at low-income households (within Member States and within the EU overall). This will in turn inform the need for a further intervention proposed below.

- Following this analysis, DG Energy (ENER) and DG Health and Consumers (SANCO) should work with the EU Agency for Cooperation of Energy Regulators (ACER) and the Council of European Energy Regulators (CEERs) to introduce discrete EU Guidance encouraging Member States to report consistently on how they will fulfil current (and the proposed) statutory obligations to energy poor and vulnerable energy consumers.

- As previously highlighted, fuel poverty is not measured in a consistent way across Europe however EU regulation (EC 1177/2003) does require European countries to collect a range of information on income and living conditions, including data on a household's ability to keep adequately warm at an affordable cost. These existing powers should be extended if MS fail to address significant differences in national data-sets that can help inform the extent and depth of fuel poverty within the individual countries and at sub-national level.

Recommendation 5

Existing EU legislative safeguards are failing to provide adequate support for low-income households and adjustments to the current framework are urgently required. NEA therefore proposes that:

- The current discretion under the existing Energy Efficiency Directive (which allows Member States discretion to ensure a share of energy efficiency measures from levy-funded energy efficiency obligations are directed at households affected by energy poverty or in social housing) should be removed and the European Parliament must insist that 50% of the energy efficiency activity (or greater) must be targeted at these groups if the Member State chooses to fund their energy efficiency obligation policies through a levy which is paid for by domestic energy consumers.

- In order to determine how to fund energy efficiency obligation schemes, Member States must also submit a detailed analysis to the Commission illustrating how they have investigated alternative revenues. In particular, Member States must submit analysis to the Commission illustrating how they have considered the use of revenues from auctioning Emission Trading Scheme (ETS) permits or additional carbon taxes which can be earmarked for a range of measures, including addressing fuel poverty as a way of mitigating price impacts.

- Member States who have used revenues from auctioning Emission Trading Scheme (ETS) permits or additional carbon taxes for alternative purpose, must demonstrate how the levy-funded energy efficiency obligation directed at households effected by energy poverty is contributing to a greater investment in improving the energy efficiency of the worst of the existing housing stock, and is directed at households affected by energy poverty.

Recommendation 6

There is significant opportunity to supplement adjustments to the current legislative framework with a call for binding EU-wide minimum energy efficiency standards for low-income households alongside the emerging 2030 energy targets. This could best be achieved by introducing social targets to focus on achieving minimum energy efficiency levels for low-income households (currently assumed to be across tenure) by a specified date.

Given that a new home built today has an average energy efficiency performance certificate (EPC) level of band C to B, it would be possible for the 2030 targets to reflect a requirement on Member States to raise all homes occupied by low-income households up to a minimum of EPC of band C or B by 2030. This should also be supplemented by a longer-term EU-wide goal to "ensure that every household in the EU can adequately maintain the temperature of their dwelling to safeguard their health and wellbeing".

Recommendation 7

A new EU fund should be established to finance low-cost energy efficiency measures within low-income households. Whilst the fund could help deliver the proposed domestic minimum energy efficiency standard, the funding should be additional to funding mechanisms at Member State level (ETS revenue, revenue from other domestic carbon taxes and energy efficiency obligations) and seek to be a major EU-wide job stimulus, supporting an additional 90,000 low-skilled workers and fostering collaborative action between DG Energy, DG Health and Consumers and the DG Directorate General for Employment, Social Affairs and Inclusion. The total funding sought is circa €5bn and this would be paid for by a restructuring of existing energy funds, ring-fencing a share of the European Social Fund and contributions from national funding from Member States. A preliminary feasibility study could be funded through the EU budget on the initiative of the European Parliament, who could subsequently propose pilot projects.

Recommendation 8

The EU must aim to uphold the 'polluter pays' principle within Member States and seek to check a recent trend for ameliorative policies for heavy industry to be paid for at the expense of domestic consumers, including the most vulnerable. In particular:

- Given that Member State exemptions for energy intensive industry are presenting unknown additional costs on domestic consumers, the impact this practice has on low-income households and energy poverty levels must be suitably investigated and considered within Member States and the EU must act to enshrine reporting practices which allow the Commission to investigate the distortion created within the energy market (between different categories of consumers). The Commission should then report on the likely impact that will result from Member States choosing to fund these polices through a regressive mechanism, compared to general taxation.

- If this analysis reveals that Member States have chosen to fund these polices through a regressive mechanism (and do not have a suitable set of mitigating policies in place to compensate domestic consumers from these additional costs), Article 107(3) (c) of the Treaty on the Functioning of the European Union should be amended, restricting the granting of state aid to facilitate the development of these activities (where it can be proved that these activities unduly distort competition in the single market and exacerbate 'energy poverty').

7. CONCLUSIONS AND NEXT STEPS

Following the analysis contained within this report, NEA has investigated the feasibility of establishing an 'EU-wide Social Energy Target'. Recommendation 6 therefore states that within the 2030 framework the EU should legislate to set minimum energy efficiency standards for low income households, enhancing the energy efficiency of existing domestic properties so they have the same energy efficiency level as many new homes built in Europe today. The report illustrates how this approach would reduce energy waste, reduce energy imports overall and at the same time address needless suffering. It is hoped that this could ultimately support a bold and new European-wide commitment; to ensure that one day every household in the EU could adequately maintain the temperature of their dwelling to safeguard their health and wellbeing.

The report has also proposes key legislative changes. The legislative reforms are intended to be complementary to, and developed alongside, the proposed minimum energy efficiency standards within the new 2030 energy and climate targets and create a clearer legislative framework which enhances the need for Member States to protect low-income energy consumers. It is also hoped this would support overall attempts to reach Europe's cost-effective energy saving potential and therefore make it less costly for Europe to meet its existing energy goals. In order to capture this potential in full, the report also notes that the EU Commission has not proposed setting a binding target on energy saving for 2030 and therefore recommends a binding 40% target for energy saving must be introduced for 2030.

The report also illustrates that EU-wide funding is not well targeted at low-income households or further promotion of Member State and EU initiatives and funds are urgently required. This must also be supported by a consistent message across the EU and its institutions that energy efficiency and energy savings is the key way to address energy poverty and protect low-income and vulnerable consumers from energy price rises . This must extend beyond rhetoric and the EU and Member States must recognise the critical importance of targeting policy measures at those who need the most support with particular consideration given to provision of capital grants for low-income households and having due regard to the fact that low-income households may not have financial resources to finance energy saving measures or more efficient appliances without access to capital grants.

As well as enhancing the need for Member States to consider increasing investment and promotion in energy efficiency to protect low-income energy consumers, NEA have also highlighted where potential exists to create a new and additional EU fund which should be established to finance low cost energy efficiency measures within low-income households. As this report demonstrates, as well as improving the indoor temperature of millions of domestic properties, this additional EU-led initiative has the potential to be a major EU-wide job stimulus, potentially supporting an additional 90,000 low-skilled workers as well as promoting the other co-benefits of energy efficiency measures. If this outcome cannot be achieved immediately, the report authors have highlighted that a preliminary feasibility study could be funded through the EU budget on the initiative of the European Parliament, who could subsequently propose pilot projects.

NEA has also proposed measures to address the profound differences in the degree of understanding of "fuel poverty" or "energy poverty" as a major social problem and how it relates to the EU's broader energy priorities. Recommendation two therefore illustrates how it is possible to align differing perceptions of the 'problem' and illustrates how a common understanding of these critical issues can be achieved. However, NEA also notes that this consideration must not hold up the urgent need for adequate action across Europe in the short term.

In conclusion, there is an urgent need to recognise that the EU, its legislators and Member States can and must address many gaps in provision. The opportunities to secure these outcomes are immediate and pursuing a more deliberate and coordinated approach to reducing the 'energy divide' that exists within many Member States offers immediate and long-lasting benefits. As well as yielding many benefits, there are however significant and growing costs to inaction and beyond positive rhetoric, the EU Commission, EU Parliament and Council Leaders must take action now to ensure that all Member States and their respective citizens understand how existing and planned climate and environmental targets and aspirations can, and must be delivered, at the same time as addressing the social consequences of higher energy bills as Europe continues its sustainable long-term energy transition.

Annex 1: Sources and further information

1 The Centre for European Reform is a think-tank devoted to making the European Union work better and strengthening its role in the world. For further information please visit: http://www.cer.org.uk/about.
2 The 'European Fuel Poverty and Energy Efficiency (EPEE)' project was funded by the EU's 'Intelligent Energy Europe' initiative. The EPEE Consortium brought together actors with different competences "to apprehend the links between housing, energy and poverty."
3 For further information http://ec.europa.eu/energy/intelligent/
4 Market Observatory for Energy, European Commission Directorate General for Energy, June 2011.
5 European Energy Security Strategy, Communication from the Commission to the European Parliament and the Council, May .2014.
6 General Secretariat of the Council, conclusions of the European Council 20th and 21st March 2014.
7 EU-SILC data on inability to keep a home adequately warm Member States 2012
8 Within the United Kingdom, the National Institute for Health and Care Excellence (NICE) recently issued a call for evidence on: 'Excess winter deaths and morbidity and the health risks associated with cold homes'. NICE's consultation is helping to develop an evidence base for excess winter deaths to identify the direct financial costs of fuel poverty and cold homes on the wider population.
9 This issue is not just relevant to health costs, for example, debts owed to the energy suppliers, ('fuel debt') reduces expenditure on other essential goods and reduces spending within Member States and their local economies.
10 The European Commission's 2030 Framework homepage can be found at http://ec.europa.eu/clima/policies/2030/index_en.htm.
11 The analysis was conducted by Ecofys and Fraunhofer ISI in the period of December 2009 to April 2010. The report was commissioned by the European Climate Foundation (ECF) and the Regulatory Assistance Project (RAP).
12 E3G Briefing , Energy efficiency as Europe's first response to energy security by Ingrid Holmes, Luca Bergamaschi and Nick Mabey, June 2014.
13 On the 5th February 2014 the European Parliament adopted a resolution calling for an ambitious and binding 40% energy efficiency target together with binding greenhouse gas and renewable energy targets for the EU's 2030 climate and energy policy framework.
14 Fraunhofer ISI, Concrete Paths of the European Union to the 2°C Scenario, 2012.
15 Council conclusions on "Energy prices and costs, protection of vulnerable consumers and competitiveness" Council meeting Luxembourg, 13 June 2014.
16 This is the term used to describe a situation where poorer households may benefit least from energy policies whilst paying a higher share of the costs, despite emitting the least emissions.
17 These statistics are taken from the latest EU-SILC data
18 The AROPE indicator is defined as the share of the population in at least one of the following three conditions; at risk of poverty i.e. below the poverty threshold; in a situation of severe material deprivation and living in a household with very low work intensity.
19 Data is analyses of recent statistics on monetary poverty and income inequalities in the European Union (EU) taken from July 2013, main tables and database.
20 This ratio varied considerably across the EU-28 Member States, from 3.5 in Slovenia and the Czech Republic, to at least 6.0 in Greece, Romania, Bulgaria and Latvia, peaking at 6.8 in Spain.
21 Communication from the Commission to the European Parliament, The Council , The European Economic and Social Committee and the Committee of the Regions, Energy prices and costs in Europe, 29 January 2014.
22 IFS Green Budget 2014, 05 February 2014
23 Joseph Rowntree Foundation, Distribution of carbon emissions in the UK: implications for domestic energy policy by Ian Preston, Joshua Thumim, Vicki White, Toby Bridgeman and Christian Brand shows that the richest 10 per cent of households in the UK emit twice that of the poorest 10 per cent from energy consumed in the home. If emissions from personal travel (including private vehicle, public transport and aviation) are included, this differential increases even further: the richest 10 per cent of households emit 16 per cent of all emissions, while the poorest 10 per cent emit only 5 per cent of the total.
24 The legislative basis for the data collection exercise is Regulation 1177/2003 of the European Parliament and of the Council.
25 Commission Guidance document on Energy prices and costs in Europe produced for the European Parliament, the Council and the European Economic and Social Committee, p.6.
26 Ibid
27 One of the recommendations made in this report is that DG Energy (ENER) must actively review the specific attempts made by Member States to reduce the extent and depth of energy poverty within National Energy Efficiency Actions Plans. At the moment this is unknown.

28 The Commission report notes that renewable energy added to retail prices constitutes 6% of the average EU household electricity price and approximately 8% of the industrial electricity price before taking exemptions into account
29 Past and future trends in environmental and social levies, Centre for Sustainable Energy and the Association for Conservation of Energy, November 2012.
30 ulnerable Consumer Working Group Guidance Document on Vulnerable Consumers produced in November 2013, p7.
31 For more information regarding the UK Government's compensation package for energy intensive industries see: https://www.gov.uk/energy-intensive-industries-compensation-for-carbon-leakage.
32 Ibid
33 Contracts for Difference (CfDs) will be used by the UK Government to fund large scale renewable projects and new nuclear plants from 2017. For more information regarding the 'Contracts for Difference' costs exemption eligibility, see: https://www.gov.uk/government/consultations/electricity-market-reform-contracts-for-difference-costs-exemption-eligibility.
34 Ibid
35 For information on industrial energy efficiency opportunities see: http://www.iea.org/publications/freepublications/publication/tracking_emissions.pdf and http://www.un-energy.org/publications/45-policies-and-measures-to-realise-industrial-energy-efficiency-and-mitigate-climate-c
36 Ecofys for EIIF (2012) Climate protection with Rapid Payback
37 All conversions are based on 1 British Pound Sterling equalling 1.23 Euros
38 The Energy Bill Revolution Campaign has the support of over 150 national organisations across the UK. For further information see: http://www.energybillrevolution.org/whos-behind-it/
39 Within the chapter of this report entitled 'Synthesis and the benefits of enhanced action' we note research which is able to demonstrate that as well as substantially reducing fuel poverty and reducing needless energy waste, this move could also prompt other major benefits including a major opportunity for further jobs within the energy efficiency industry.
40 In addition, if the effect of domestic electricity customers that are reliant on electricity as their main heating fuel was also included, (or the higher energy consumption of households which also need to rely on electricity for cooling taken into account) this increases the contribution these households will make to the aforementioned policy costs.
41 DECC's estimated impacts of energy and climate change policies on energy prices and bills report , on which our assumptions are based, assumes that tighter efficiency standards for household energy appliances are expected to deliver an average annual saving of just under €200 per household in 2020 (including around €30 per household through more efficient TVs and set-top boxes, €30 through more efficient consumer electronics and just under €25 through more efficient lighting).
42 One example of good practice is a programme from the Brussels Capital Region. See: http://www.bruxellesenvironnement.be/uploadedFiles/Contenu_du_site/Particuliers/01_Gestes/09_Mes_primes/Primes_%C3%A9nergie_2012/FR_F_2012_R.pdf
43 Towards a new Energy Strategy for Europe 2011-2020, EU Council, 2011
44 See: http://www.elections2014.eu/en
45 The Directive can be found at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:165:0063:0079:EN:PDF. The potential assessment is based on a comparison of the PRIMES reference scenario used in the Energy Roadmap 2050 (which leads to a primary energy reduction of 9.2% and contains energy efficiency policies up to March 2010) and the 20% energy efficiency scenario used for the impact assessment for the Energy Efficiency Directive, both updated to 2010 energy price forecast.
46 "An Energy Policy for Consumers" [SEC/2010/1407]: Working Paper Interpretative Note on Directive 2009/72/EC concerning common rules for the Internal Market in Electricity and Directive 2009/73/EC and concerning common rules for the Internal
Market in Natural Gas Retail Markets: http://ec.europa.eu/energy/gas_electricity/consumer/consumer_en.htm
47 http://ec.europa.eu/energy/gas_electricity/interpretative_notes/doc/implementation_notes/2010_01_21_retail_markets.pdf.
48 The conclusion of a global climate agreement is expected at the UN Climate Summit in September 2014 and signed at the Conference of the Parties in Paris in 2015. The European Council has confirmed that the European Union will submit its contribution at the latest by the first quarter of 2015.
49 Communication from the Commission, Action Plan for Energy Efficiency: Realising the Potential, 2006.
50 DG Energy, Energy Efficiency Delivering the 20% Target, p.36.
51 Ibid, The Energy Efficiency Plan, 2011.
52 In November 2008, the Commission published the Communication "Energy efficiency: delivering the 20 % target" recommending a reduction of 20 %, by 2020, of primary energy consumption. It transpired that this target would be difficult to achieve if the EU did not exploit the considerable potential of energy savings in sectors such as buildings and transport
53 For further information see: http://ec.europa.eu/energy/efficiency/eed/eed_en.htm.
54 Overcoming the split incentive was the subject of a Commission led workshop. For more information about how Member States are addressing these issues see: http://iet.jrc.ec.europa.eu/energyefficiency/workshop/overcoming-split-incentive-barrier-building-sector-workshop.
55 The concept of Member State discretion under this article is addressed within the recommendations of this report.

56 The Energy Efficiency Directive impact assessment can be found here: http://ec.europa.eu/clima/policies/2030/docs/swd_2014_xxx_en.pdf
57 This calculation takes into account the overlaps between measures (so that the predicted impact is less than that of each measure when calculated individually).
58 The PRIMES model projects dynamically to the future energy balances, investment costs, prices and emissions per country. PRIMES was used by DG TREN to develop the scenarios and forecasts that are included in the Directive.
59 The costs mentioned (e.g. investments in energy efficiency measures and in power and steam generation and distribution, total energy system costs) are averaged, annualised energy system costs for stationary uses excluding disutility and direct auction payments. It should be noted that in PRIMES most energy generation costs up to 2020 are derived from exogenous assumptions and the impact of reduced energy demand is therefore not fully modelled.
60 These costs are based on the assumption of oil prices of $88'08/barrel in 2020, rising to $106'08/barrel in 2030. If prices stay higher than this (current price: $103/barrel), the cost saving from energy efficiency will be greater. In addition, it should also be noted that the analysis does not take into account the fact that lower energy demand (as a result of energy efficiency policies) will lead to lower energy prices.
61 SEC(2011) 779
62 This report has drawn on the sources of finance illustrated within a report prepared for the European Commission: Financing the energy renovation of buildings with Cohesion Policy funding, prepared by Julien Paulou (ICF International), Jonathan Lonsdale (ICF International), Max Jamieson (ICF International), Isabella Neuweg (ICF International), Paola Trucco (Hinicio), Patrick Maio (Hinicio), Martijn Blom (CE Delft), Geert Warringa (CE Delft), February 2014.
63 Vulnerable Consumer Working Group Guidance Document on Vulnerable Consumers produced in November 2013.
64 Ibid.
65 Ibid, p.12
66 p13.
67 Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Energy Efficiency Plan, 2011.
68 Council of the European Union summary of the 3299 Council meeting, Transport, Telecommunication and Energy, 4th March 2014.
69 Ibid, p.21.
70 The Commission Implementing Decision and the Guidance for the NEEAPs do not mention establishing a specific block of measures addressing vulnerable consumers and therefore not clear whether MS have specific aspirations for how EE can tackle energy poverty or consumer vulnerability.
71 HM Treasury, Regulating auctions of EU emissions allowances, July 2011.
72 Council of the European Union, 12 December 2008, 17215/08, the elements of the final compromise regarding the energy and climate change package, as agreed by the European Council at its meeting on 11 and 12 December 2008 .
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86 Ministry of the Environment (2013) The Government approved the use of funds quota regime. Available at: http://translate.google.com/translate?hl=en&sl=auto&tl=en&prev=_dd&u=http%3A%2F%2Fwww.envir.ee%2F1202071

87 Kuklyte, J. Head of Climate Finance and Project Management Division, Ministry of the Environment (2013) Lithuania's use of ETS revenues. [Email] Message to: Sunderland, L. (21 Oct 2013)

88 Taken from the impact assessment to the 2030 package:: http://ec.europa.eu/energy/doc/2030/20140122_impact_assessment.pdf

89 Law 2010-788, voted on the 12th of July 2010, called 'Loi Grenelle 2', article 11

90 Page 12 of http://www.dcenr.gov.ie/NR/rdonlyres/0F62CF04-F7FB-4BC3-A861-7516422856BC/0/TechnicalAnnexAffordableEnergyStrategy.pdf
The strategy specified that a fuel poor household should be defined as such if they need to spend more than ten per cent of their income to maintain a warm and healthy living environment. The Westminster Government currently defines a healthy living environment as 21oC in living areas and 18o C in other areas of the house.

91 Whilst the Warm Homes and Energy Conservation Act is the foundation of fuel poverty targets in England and Wales, the Housing (Scotland) Act provides the basis for fuel poverty objectives in Scotland and there is no legislative driver for the eradication of fuel poverty in Northern Ireland.

92 John Hills, Getting the measure of fuel poverty Final Report of the Fuel Poverty Review, March 2012.

93 Ibid

94 For example, In England, fuel poverty is modelled using the data from the English Housing Survey (EHS), in Scotland the Scottish House Condition Survey (SHCS), in Wales the Living in Wales Survey and Northern Ireland the Northern Ireland House Condition Survey.

95 Collins in 1986 stated that householders that experience indoor temperatures below 16oC have an increased risk of respiratory disorders. In 1993 Collins went on to prove that (along with Lan Chang et al 2004; Howieson and Hogan 2005) that below 12oC cardiovascular stress occurs. In 2000, Collins concluded that acute respiratory infectious diseases cause the highest mortality when they affect a vulnerable section of the population, such as elderly people already suffering from chronic disabling respiratory illness.

96 For more information: http://www.euro.who.int/__data/assets/pdf_file/0017/145511/e95004sum.pdf [p 6]

97 Ibid p13

98 UK Chief Medical Officer (2009) Annual Report.

99 Report on excess mortality in Europe during summer 2003 (EU Community Action Programme for Public Health, Grant greement 2005114) by JM Robine, SL Cheung, S Le Roy, H Van Oyen et F R Herrmann 28 February 2007

100 Insulation fabric improvements made to a house can address both of these issues, making properties more comfortable to live in by making them warmer in winter and cooler in summer.

101 European Energy Security Strategy, Communication from the Commission to the European Parliament and the Council, May .2014.

102 European Commission 2030 Communication of Climate and Energy. Impact Assessment (2013).

103 E3G Briefing , Energy efficiency as Europe's first response to energy security by Ingrid Holmes, Luca Bergamaschi and Nick Mabey, June 2014.

104 The reason for this is that jobs may be created in one sector but not in another and the net benefit at national level may be insignificant

105 Department of Energy & Climate Change: Energy Efficiency Strategy: The Energy Efficiency Opportunity in the UK; Nov 12

106 KfW; Impact on public budgets of the KfW promotional programmes, 2011

107 Department of Energy & Climate Change; Fuel Poverty: changing the framework of measurement; Sep 12

108 In developing a standardised package, assumptions were made around a typical number of units to install per low-cost measure per property (for example two radiator reflector panels per household). Calculations for the three property types incorporate only those measures applicable to that property type. For example, costs and savings associated with letter box lagging are excluded from calculations for a mid-floor flat. Water-saving measures (e.g. a Hippo Water saver) were excluded from this final report on the basis they are not directly aligned to realising energy efficiency benefits and low-cost water-saving devices can often be acquired for free from water utility companies. Loft hatch draught proofing was also excluded on the basis a risk assessment is required to install it. Finally, it should be noted that, in practice, it is not expected this full package of measures would be applicable or installed in a single property. NEA would expect around five measures to be installable in each property.

109 For example, energy efficient light bulbs, GLS – LED, cost £12.24 per unit but on average five are required per property. Thus this measure was excluded from the standardised package.

110 As above, all conversations are based on 1 British Pound Sterling equalling 1.23 – 1.25 Euros
111 Savings for each measure are calculated on the assumed typical number of units installed per measure per property, as presented in Table 5
112 The figure for each metric (Saving €/annum, Saving kg CO2/annum) represents the mean of the estimated minimum and maximum saving.
113 This employment figure is based on the programme delivering 30m installations in one year with an average time spent in each property estimated at 5 hours and an average working year of 16000 hours a year. This is the approximate average working time across Europe according to the European Foundation for the Improvement of Living and Working Conditions' Comparative analysis of working time in the European Union report.
114 For more information visit: http://ec.europa.eu/social/main.jsp?langId=en&catId=89&newsId=2030
115 Every year the European Parliament can propose pilot projects that are financed from the EU budget. There is a total of circa 50 million EUR available with individual projects being able to access 50.000-900.000 EUR. A feasibility study could therefore trial the suggested approach for the installation of low cost energy efficiency measures within low income households with the findings being used to inform the main action recommended in the study.
116 Under the Third Energy Package, a legislative framework to promote an internal gas and electricity market in the EU that came into force in September 2009, member states are required to undertake a Cost Benefit Analysis of smart meter roll-out and submit the results to the Commission
117 EPC means a certificate which indicates the energy performance of a building or building unit. (Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings).
118 All EU member states must follow the Energy Performance of Buildings Directive. This requires that all properties (homes, commercial and public buildings) must have an Energy Performance Certificate when sold, built or rented. The directive has been 'recast' and came into force on 9 January 2013. Under the Energy Performance of Buildings Directive (EPBD) requirements Member States must implement minimum energy performance requirements for new and existing buildings. They are required to ensure that all new buildings are 'nearly zero-energy' by 2021.
119 A policy maker report from Re-Define Sony Kapoor, Managing Director & Linda Oksnes, Research Associate With additional writing by Ryan Hogarth, Research Associate, May 2011.
120 Based on Europe's official poverty line, that is households with an income less than 60 per cent of the median income after housing costs.
121 The efficiency of the boiler is the main factor in the overall efficiency of a domestic central heating system. This is why minimum standards of efficiency are required by law for most boiler types. UK building regulations requires a higher performance than the EU Boiler Efficiency Directive but best practice requires boilers of even higher efficiency to be selected.
122 ACE, 2013, Modelling a new fuel poverty target, Consumer Futures
123 The ECO places an obligation on energy suppliers to deliver heating and energy efficiency measures to domestic energy users The current ECO consists of three separate targets which energy suppliers are required to meet by 31 March 2015. However, following interventions announced in the 2013 Autumn Statement the Government are likely to reduce the March 2015 Carbon Emissions Reduction Obligation (CERO) target by 33 per cent. The March 2015 Carbon Saving Community Obligation (CSCO) and Affordable Warmth (also known as the Home Heating Cost Reduction Obligation (HHCRO) targets will remain the same and have been extended to March 2017.
124 Citizens Advice, Raising standards, cutting bills - Healthy homes: a costed proposal to end fuel poverty through higher standards and fairer funding, June 2014, p.3.
125 Cambridge Econometrics & Verco, 2012, Jobs, growth and warmer homes, Consumer Futures.

Annex 2: Illustrating and monetising health improvements

The report highlights that energy inefficient homes are not only expensive to heat and cool but can also damage the health of their occupants. This annex cites evidence drawn from relevant experts in this area.

Professor Geoff Green – Centre for Regional, Social and Economic Research, Sheffield Hallam University, UK

Professor Green (now emeritus), working with other experts, has investigated the health and social benefits of housing improvements, in particular the upgrading of social housing to meet the UK's Decent Homes Standard. In their calculations, the authors used Quality Adjusted Life Years (QALYs) to determine the health outcomes from unsatisfactory conditions and, gave a monetary value of a QALY as £30,000 - £40,000 (see Mason H, Jones Lees M, and Donaldson C, 2009. While the conclusions were that there were modest savings to the NHS, the authors point out that their estimates were '… confined to those residents previously harmed enough to seek medical attention from the NHS'. There will be many more beneficiaries who have not sought attention.' Another report on the UK's Warm Front – Better Health (2008), investigated the impact of the Government's Warm Front initiative. The Warm Front Initiative ended in January 2013. As noted above, it was intended to help people at risk of fuel poverty. While the report did not include any detailed cost benefit analyses, the authors concluded that:

- Better living conditions have a significant impact on health
- Increased temperatures are linked to better health and fewer winter deaths
- Less mould reduces respiratory problems
- The main route to health gain is via the alleviation of fuel poverty
- Warm Front recipients were less stressed because it was easier to pay fuel bill
- Less stress was strongly associated with better mental and physical health.

Jonathan Wilson – National Center for Healthy Housing, USA

The project partners in this study – Watts to Wellbeing – included the Centre for Neighbourhood Technology, Action for Boston Community Development, Tohn Environmental Strategies, and Enterprise Community Partners. This project investigated whether energy conservation measures improved the health status of occupants, in particular the following self-reported outcomes – general health; respiratory health; cardiovascular health; and mental health. The study showed that residential energy conservation work generally improved health, although further research was needed to understand asthma-related outcomes. No cost benefit analyses were carried out.

Professor Christine Liddell – University of Ulster, Northern Ireland

Since 2009, Professor Liddell has focused on various aspects of fuel poverty. In several presentations she has highlighted the cost benefits of tackling energy inefficiency and fuel poverty. Professor Liddell has also emphasised the impact on mental health of fuel poverty, in children as well as adults.

In one report, working with others, she was able to investigate the cost benefits in some detail – Kirklees Warm Zone: The project and its impacts on well-being. Based on the findings from this study, it seems that for a one-off (non-repeatable) outlay of £22.1 million for energy efficiency measures, there was an annual saving of £3.6 million. This suggests a pay-back period of just over six years. In an earlier paper, The Impact of Fuel Poverty on Children (2009), Professor Liddell reported that of the £109 million invested through the Northern Ireland

Fuel Poverty Strategy, Warm Homes, between 2001 and 2008, the savings to the NHS as fewer children needed treatment was £13 million. This meant that 12% of the Warm Homes investment could be recovered through improvements to child health. She went on to state that if the health improvements for adults was added in, around 42% of the investment could be recovered. Then, taking into account carbon offset, another 100% of the initial investment could be included over the lifetime of the energy efficiency measures .

Simon Nicol, Mike Roys, Maggie Davidson – Building Research Establishment, UK

The BRE manages, and holds data from, the English Housing Survey (previously the English House Condition Survey). Since 2006, the EHS has included assessment of conditions using the Housing Health and Safety Rating System (HHSRS). The first report explaining the methodology was The Real Cost of Poor Housing .This report estimated the cost to improve those dwellings judged to have severe threats to health because of energy inefficiency (cold homes) was £11.7 billion, and this would save the health sector £21.4 million. The cost of the improvement works is a one-off (non-repeatable) cost, whereas the saving to the health sector is an annual saving. It does mean, however, that not improving cold homes also means an annual cost of £21.4 million to the health sector. The report also estimated that this cost to the health sector is around 40% of the total cost to society. Critically for this report, the calculations in this first report were based on minimum energy efficiency improvement, and subsequently the BRE produced a second report – Quantifying the Cost of Poor Housing.

The calculations in this second report were based on upgrading the energy efficiency of housing to more realistic and acceptable levels, further reducing the potential demands on the health sector. This report put the cost of improving the energy efficiency of cold homes at £24.7 billion, and the potential cost saving to the health sector at £752.3 million; again a one-off cost compared to an annual saving. An important aspect of these reports is recognition that it is unrealistic to assume that the outlay for upgrading dwellings will be spent in year 1; so several scenarios are calculated showing the cost benefits when the upgrading is phased over a number of years. The reports also give the pay-back periods; the number of years for the outlay to be matched by the cost savings. Using they methodology developed, the BRE has produced two further reports; The Real Cost of Poor Housing in Wales and The Real Cost of Poor Housing in Northern Ireland. The BRE has also developed an interactive Housing Health Cost Calculator that allows the costs to the NHS and society of unsatisfactory conditions to be estimated based on local data and allows these costs to be compared with the estimated cost of interventions. The BRE has also produced a report – The Health Costs of Cold Dwellings. This report was commissioned by the Chartered Institute of Environmental Health . This report uses the Housing Health Cost Calculator to estimate the cost to the NHS of energy inefficient dwellings as £192 million. After refining the calculations, the report states that the cost to the NHS of not upgrading these dwellings is £145 million per annum at least.

Dr Anthony Threfall – Greater Manchester Public Health Practice Unit, UK

Commissioned by the UK Public Health Association, Dr Threfall calculated the cost benefits of fuel poverty interventions undertaken as part of an initiative in Greater Manchester. The initiative was the Affordable Warmth Access Referral Mechanism (AWARM) aimed at reducing fuel poverty. The calculations centred on interventions in 52 households, estimated to cost £88,800. The benefits were assessed in terms of Quality Adjusted Life Years (QALYs), using an NHS threshold of £20,000. Using various scenarios, Dr Threfall calculated that the benefits gained ranged from £64,000 to £653,800. Dr Threfall's conclusion was that energy efficiency interventions are '… almost certainly cost effective and that they can be considered a good use of public resources'.

UK Audit Commission

The report Building Better Lives (2009) looks at strategic housing, and, while it does not focus on energy efficiency, it does state that 'Improving housing can improve public health and children's education, and make communities more stable' and 'Every £1 spent on providing housing support for vulnerable people can save nearly £2 in reduced costs of health services, tenancy failure, crime and residential care'.

Marmot Review Team

Although it does not deal with cost benefits associated with energy efficiency interventions, the report The Health Impacts of Cold Homes and Fuel Poverty (2011) does highlight direct and indirect impacts of cold homes and fuel poverty. The findings show the wide range of outcomes, some of which may not have been taken into account in some of the cost benefit calculations by others.

The findings were that the direct impacts include: Excess Winter Deaths (EWDs) are almost three times higher in the coldest quarter of housing than in the warmest quarter (21.5% of all EWDs are attributable to the coldest quarter of housing. Children living in cold homes are more than twice as likely to suffer from a variety of respiratory problems than children living in warm homes. More than 1 in 4 adolescents living in cold housing are at risk of multiple mental health problems compared to 1 in 20 adolescents who have always lived in warm housing.

NEA
Action for Warm Homes

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