CLIMATE & STRATEGY
PARTNERS

Response to Consultation

To: Whom it may concern

Date: 7th May 2012

Re: Response to Consultation on the Financial Support for EE in Buildings

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The following is a response from Climate Strategy & Partners ("CS") to the questions raised in the Commission's public consultation from 15/2/2012 to 18/5/2012 on "**Financial Support for Energy Efficiency in Buildings".**

CS provides answers to the following questions:

1. ***Addressing market failures***

   a. **Are the barriers identified in this document the most important ones? If not, which barriers are missing and why are they important?**

1a) The 'energy efficiency gap' has been identified by the Commission as including market failures, financial 'barriers' and the regulatory framework:

The Commission's list is quite complete and articulates much of the research in the area, however in our opinion the categorization does not completely reflect the broader ability of regulatory action to resolve both "Market Failures" and "Financial Barriers". To highlight this, CS has introduced its own categorization against the Commission's classification where "R" means "Regulatory"[1] (ie first needing a regulatory fix), "P" meaning "Perception" and "I" means "Informational". CS believes that Regulatory ("R") barriers can be removed by direct engagement by legislators and that it is appropriate that the EU determine a template approach for National legislators to follow. "I" Informational (and Training) barriers can be resolved with appropriate infusion of resources to fill the identified information or training gap. However, CS believes that "P" Perceived barriers are harder to change immediately and can take significant resources and have slow rates of change: Specifically CS believes that perceptions are changed by actions and corroborating data which will be stimulated by changes to Regulations and addressing Informational (and Training) barriers – and thus the Perceived barriers can be resolved by resolving the Regulatory and Informational barriers first. This is summarized as follows:

MARKET FAILURES	**Energy costs are relatively low** compared to many other cost factors	P
	Energy market prices do not reflect all environmental and social costs	R
	Split incentives or principal-agent problems	R
	Information failure : its asymmetric access, the mere lack of available information and its highly technical nature	I
	Many actors in the building sector do not have **adequate training** and	I

[1] *"R" Regulatory barriers have been highlighted in yellow to illustrate optically the increased capacity CS believes that exists through improved regulation than perhaps the consultation initially suggests.*

	knowledge regarding energy efficiency issues	
	High **'inconvenience' barrier** linked to building renovation, especially for 'deep' renovations	P
Subset of MARKET FAILURES: ESCO MARKET FAILURES	Barriers that have been identified specifically for **the ESCO market** including: Low awareness of and **lack of information** about the ESCO concept, Real and **perceived high business and technical risks**, High level of **mistrust in the ESCO model**, **Ambiguities in the legislative framework** - including the public procurement rules, **Lack of experience** to develop adequate tender documents and specifications resulting in poor tenders, **Competing alternative financing** mechanisms.	I/P/R
FINANCIAL BARRIERS	Relatively **high level of initial investment cost**	R
	Biased financial perceptions about initial costs and pay-back periods	P
	Information failure including: The absence of awareness and knowledge among financiers; and a lack of knowledge, resources and capacity to plan viable energy efficiency projects among regions and cities.	I
	High transaction costs due to small size and uncertainty of savings.	R
	Energy savings are almost never taken as collateral and **asset market value does not reflect the energy (and economic) performance** of those assets (i.e. buildings).	R
	Dependency on grants and a **lack of a systemic approach to bundling energy efficiency investments** into packages	R
REGULATORY FRAMEWORK	Regulatory **policies which discourage investment in energy efficiency**	R
	Lack administrative capacity to develop energy efficiency legislation	R
	Too frequent changes in the legal framework and financial support programmes, and a **lack of a long-term vision**	R

There are a few barriers which are either "missing" or perhaps under-stated in the consultation which CS believes are worth considering:

1. **EE Investment Categorization/ The way Policymakers deal with the Investments Required for Energy Efficiency**: Investments in Energy Efficiency are designed to deliver future energy and cost savings. While exact amounts and horizon periods can be debated, this is quite unlike the majority of comparable infrastructure expenditure, which is primarily enabling in nature (airport, new rail line, roads). Enabling infrastructure in some way assumes that there is future expenditure (domestic and international) to drive greater national revenue resulting directly or indirectly from the new infrastructure investment – not so for energy efficiency, it directly reduces costs (through savings) and these cost savings are programmable and agreed at the time of investment and not so subject to a web of implied and more risky assumptions. Hence, CS believes that the direct 1 for 1 comparison of Energy Efficiency investment with other Infrastructure spending is, *prima facie*, detrimental to the lower risk and greater yielding nature of well executed energy efficiency.
2. **Transparency of energy usage data:** The need to give access to sufficiently detailed and good quality energy usage information, without compromising privacy, both at a national or regional level (to allow for a cost-optimal plan to be developed) and at an individual site level (to allow occupants and owners in combination with renovation/ retrofit contractors to develop optimal site solutions) is key. In Member States with poor national data, estimated billing methods or shared meters it will take time to develop high quality information to allow retrofitters, businesses and homeowners to plan renovations and also make the writing of National Action Plans initially fairly "high level" requiring a defined strategy designed to improve their quality over time with better data (being a defined and necessary outcome of the first plan).
3. **Sub-Optimal Decision Frameworks in the Public Sector for EE Investments:** It has been noted in the context of consumers the "short payback periods" required (3-4 years or high discount rates for retrofits eg 20%). Yet the Public Sector suffers problematic accounting methods, decision making practice, internal split incentives (between departments) and budgetary hurdles to overcome which collectively lead to unnecessarily high risk perception

of energy efficiency and sub-optimal economic decision making (especially detrimental to long-term sustainable measures with low returns over many years – such as deep renovation).

4. **Cost, Complexity and Maturity Limitations in the Current ESCO model**: CS fully supports the ESCO model and Energy Performance Contracting ("EPC") and thinks that the potential applicability (supported with enabling legislation addressing current concerns) of the model is considerably wider than is presently being seen. This means that for commercial, industrial and sizeable buildings projects the ESCO/ EPC model has strong application – and CS believes that balance sheet costs, balance sheet size and depth of retrofit will become limiting factors which today (due to lack of activity) are not the bottlenecks. However, CS does not see an easy or efficient transformation of the ESCO model for the residential sector (except potentially sizeable multi-family dwellings/ blocks) due to the increased complexity and transaction costs involved and the likely "cherry picking" which would result – see below.
5. **2050 Horizon**: As buildings are long-term assets and are renovated "infrequently", CS believes that a successful 2020 target needs a long-term support within a coherent 2050 framework or a perceived 2020 success maybe in itself a future barrier to the EU's performance against its own 2050 CO2 reduction objectives and Energy roadmap. There is a strong temptation, in poorly framed policy or white certificate programmes, to "cherry pick" (just undergoing a shallow renovation to deliver cheap reductions by 2020) for a high IRR and short-payback period, leaving the deeper and harder to undertake measures for a later/ unspecified date. This probably is required inclusion in the Regulatory framework section as a risk of "lack of long-term vision" in support of national roadmaps and a resource efficient Europe.

b. **Which market failures would be most urgent to address? At what level (i.e. EU, national/regional/local) would these failures be best addressed?**

CS has categorized the Commission's identified barriers into "R" – Regulatory; "I" – Informational and "P" Perceived. The following table outlines a priority ordered CS approach to the resolution of the barriers (with notes regarding level of resolution: national/regional/local):

R	**REGULATORY FRAMEWORK**	**Lack administrative capacity** to develop energy efficiency legislation	Signal priority for Energy Efficiency at EU level (through ambitious EED with binding targets and measures) and boost specific EU programmes (such as ELENA and JESSICA) with resources to target capacity building at the national, regional and local levels.	EU/ National
R	**REGULATORY FRAMEWORK**	Regulatory **policies which discourage investment in energy efficiency**	Invest at EU level in special project to identify all such policies at national, regional and local levels and publish a specific "black list" and a timeframe over which the EU expects these policies to be revised.	EU/ National
R	**REGULATORY FRAMEWORK**	**Too frequent changes** in the legal framework and financial support programmes, and a **lack of a long-term vision**	Provide long-term vision through ambitious EED tied into the EU Energy Roadmap 2050. Congruent National 2050 roadmaps should be developed by Member States which fit into the EU 2050 roadmap and provide a solid long-term framework into which local legal and financial programmes fit and can be developed.	EU/ National
R	**MARKET FAILURES**	**Energy market prices do not reflect all environmental and social costs**	EU establishes a framework to identify and measure all environmental and social costs missing from energy prices at MS level. EU uses framework to identify substantial	EU/ National

			deviations at MS level from "fully costed energy prices" and implements process through which MS must address this deviation.	
R	**MARKET FAILURES**	**Split incentives** or principal-agent problems	Spilt incentives can be resolved through the implementation of Buildings Energy Standards (EPBD); attaching the repayments for energy efficiency retrofits to the building (eg Green Deal); the removal of regulatory barriers to aligned incentives (such as protected rents, collective decision making, renter's rights etc.); and the inclusion of energy performance in a buildings' value (fiscal, in sales process literature, mandatory certificate).	National
R	**FINANCIAL BARRIERS**	Dependency on grants and a **lack of a systemic approach to bundling energy efficiency investments** into packages	Grant-based support mechanisms[2] should be taken out of the mainstream of energy efficiency and targeted only at non-market areas such as energy poverty and priority upgrades to social housing. New Government facilities can be made available to underwrite or insure "bundles" of energy efficiency investments as a means to promote the secondary market for such packages.	National
R	**FINANCIAL BARRIERS**	Energy savings are almost never taken as collateral and **asset market value does not reflect the energy (and economic) performance** of those assets (i.e. buildings).	The issue of "collateral" would be resolved if the market price of a building reflected properly its energy performance (in addition this would help resolve principal-agent problems). There are several components to resolving the market price reflection of energy performance: 1) Make energy performance visible (mandatory certification, included in transactions – sale and rental); 2) Fiscal tools: Tax breaks for high energy performance and increased taxes for poor performance (being sensitive to energy poverty).	National
R	**FINANCIAL BARRIERS**	**High transaction costs** due to small size and uncertainty of savings.	The promotion of data transparency (showing performance of retrofits) and the creation and use of Standards (in energy performance measurement, contracts, retrofit components and incentive regimes) are the tools to reduce transaction costs.	National/ Regional/ Local
R	**FINANCIAL BARRIERS**	Relatively **high level of initial investment cost**	While the cost of retrofit may decrease with economies of scale over time, the way to reduce the high cost impediment is to provide easy "point of sale" finance with low interest rates for long-maturities. The relatively high cost of a house (vs rental payments) does not deter homeowners – the availability of low rate mortgages which are easy to obtain, however, does cause homeownership to rapidly increase.	National/ Regional
I/P /R	**Subset of MARKET FAILURES: ESCO MARKET**	Barriers that have been identified specifically for **the ESCO market**	The ESCO model together with the Energy Performance Contracting approach works well for industrial and large-midsized commercial buildings (example Government buildings or	National

[2] *Understanding of "grant based mechanisms" meaning project by project assessed, cash limited Government programmes and which would not include unlimited fiscal or cash-back, feed-in measure based subsidies.*

	FAILURES	including: Low awareness of and **lack of information** about the ESCO concept, Real and **perceived high business and technical risks**, High level of **mistrust in the ESCO model**, **Ambiguities in the legislative framework** - including the public procurement rules, **Lack of experience** to develop adequate tender documents and specifications resulting in poor tenders, **Competing alternative financing** mechanisms.	pre-aggregated portfolios such as hotel chains or shopping centers). The ESCO model is not a "one size fits all" silver bullet solution and part of the barriers identified in the ESCO market may stem from the attempted application of this model to areas where another approach is optimal. There are a lot of information and perception related barriers identified here, but the single most important Regulatory one is the absence of a clear Public Buildings pathways and established set of tender practices and rules such that ESCOs can identify a clear and solid pipeline of activity and compete in open and repetitive tenders for the outsourcing of energy management services and buildings renovation in the public sector and MUSH sector ("Municipal, University, Schools and Hospitals). Clear standards and best practice tender specifications would help.	Regional/ Local
I	**MARKET FAILURES**	**Information failure** : its asymmetric access, the mere lack of available information and its highly technical nature	The provision of adequate information to the right recipients would resolve this failure (as highly technical information is not a problem to – it is required by - highly technical counterparties). National databases should be made available to registered solution providers around energy usage in buildings. Detailed technical information is required by solution providers on retrofit components – especially those relating to cost of installation and energy performance. User interface for unsophisticated buildings owners and tenants should be intuitive, simple and easy to understand and navigate.	National and local
I	**FINANCIAL BARRIERS**	**Information failure** including: The absence of awareness and knowledge among financiers; and a lack of knowledge, resources and capacity to plan viable energy efficiency projects among regions and cities.	The financiers' lack of awareness and knowledge will resolve itself once the market in energy efficiency buildings renovations takes off and involves their institutions. CS does not perceive that financial institutions lack resources, on the contrary their priorities well reflect those of Government, their customers and their regulators. Accelerated use of JESSICA and ELENA and other EU tools to educate regions and cities in the benefits and processes to engage with energy efficiency opportunities are key.	Regional/ Local
I	**MARKET FAILURES**	Many actors in the building sector do not have **adequate training** and knowledge regarding energy efficiency issues	Training resources and facilities for practitioners especially within SMEs and for buildings caretakers/ managers is considered vital and a priority to stimulate the sell-side generated demand for energy efficiency retrofits.	Local
P	**FINANCIAL**	**Biased financial**	When large amounts of mutually corroborating	National

	BARRIERS	**perceptions** about initial costs and pay-back periods	and supportive data on costs and performance of buildings retrofits become available, these perceptions will change – slowly. The creation and substantiation of these data sets may take years and its unclear that there are any short-circuits to the data – just perhaps underwriting or removal of the risks associated with this data-gap by interested parties.	
P	**MARKET FAILURES**	**Energy costs are relatively low** compared to many other cost factors	The perception that "Energy costs are low" will be resolved when energy is fully priced, there are no distorting subsidies, fiscal measures to incentivize energy efficiency are in place and the ease of energy expense reduction is proven. Finally, Government prioritization of energy usage reduction will also address this perception.	National
P	**MARKET FAILURES**	High **'inconvenience' barrier** linked to building renovation, especially for 'deep' renovations	There is actual "inconvenience" to having a house deep retrofitted, however no more so than a home re-paint or regular renovation – standard home-upgrades which homeowners do for the quality increase felt after the work is done. The "value proposition" of a deep retrofit is yet to fully percolate the public's consciousness and when it does the "inconvenience barrier" will appear less.	Local

c. How could these failures be best addressed? For example; how could behavioural change needed for quicker uptake of energy efficiency measures by society be triggered at the national level? How could the development of an energy services market for households be further stimulated? What could be done to increase awareness raising and promotion of energy efficiency in buildings? How could the business community (e.g. building sector, ESCOs, local banks, etc.) be better supported in delivering energy efficiency in buildings? How could the split incentive problem be best tackled?

Getting the priorities and the order of approach to the barriers is critical. Understanding the linkage between some of the barriers and identifying cause and effect (of perceptions and information gaps) will help answer this question. Recognizing the limits of direct regulation is also necessary.

The above table (1b) provides specific recommendations to address each of the identified barriers and is written in a loose priority order. CS believes strongly that it is inappropriate for barriers to be addressed out of order (in other words the "perception" that energy costs are low cannot be addressed while Governments continue to not fully price externalities and provide distorting subsidies – this would be like running a car with the hand-brake on). Perceptions are a reflection of reality (usually) and if perceptions are established then the presentation of irrefutable evidence in a way that elicits the required response from the target audience (requiring communication skills and spend) is required. Clearly building the evidence base is required prior to its communication and this is where time and investment are required.

CS believes that there are explicit and direct responses against each of the identified failures which mostly need to be implemented in a mutually consistent and integral manner – which will be self-reinforcing and part of a cultural shift away from a "waste" culture and toward a more efficient and sustainable one.

How could behavioural change needed for quicker uptake of energy efficiency measures by society be triggered at the national level?

Demand stimulation from buildings owners and occupants is critical, the real question is whether this "behavioural change" is best achieved through carrot or stick measures. CS believes that in all countries there is a need for both, and each national culture will determine the appropriate mix. National roadmaps need to establish the direction and adequate investment of political capital and national resources will prove to be the stimulants for the quicker uptake of energy efficiency. Prior to the application of carrots and sticks, however, the regulatory barriers which have been identified together with appropriate solutions should be fixed first – and the Government should approach energy waste with a unified voice and not through its actions imply that energy efficiency is not a priority (eg. Subsidized coal miners or high-emissions fossil fuels to protect politically powerful vested interests).

How could the development of an energy services market for households be further stimulated?

CS refers to its points around the ESCO model not necessarily being applicable to households in the context of this answer. Studies have shown that household energy costs reduce merely by the provision of detailed and accurate information to the householder around energy spend. Providing users with Smart meters and the ability to measure, understand and control energy costs is the place to start. Finally, the development of whole-of-house renovation performance standards (eg. KfW55 etc) which coincide with Energy Performance Certificates will also add transparency and drive to the retail energy services market. Finally, boost the data, transparency and drive to the sell-side (ie light a regulatory fire under the energy suppliers) and open the market to competition.

What could be done to increase awareness raising and promotion of energy efficiency in buildings?

Give buildings managers the tools to measure and understand their buildings energy performance and add economic stimulus (and regulatory sticks) to sway his/ her decision. No amount of "advertizing" will convince a buildings manager to re-prioritize something which s/he perceives as immaterial and complex. Regulatory hurdles need to be changed and transparency provided (addressing complexity) and the materiality of energy wastage needs to change (remove energy subsidies and fully price energy) together with fiscal prods to "do the right thing".

How could the business community (e.g. building sector, ESCOs, local banks, etc.) be better supported in delivering energy efficiency in buildings?

The business community would be best supported by the Regulator doing its job and providing unambiguous signals: Presently the building sector, ESCOs, local banks etc. might be forgiven for thinking that their Governments weren't serious about energy efficiency as their policies are at best mixed (Energy Efficiency being poor cousin to ETS and Renewables; and still providing huge subsidies to energy consumption and the fossil industries). Government can only expect the private sector to optimize its resources against the priorities which actual regulations exact. The buildings sector, ESCOs, local banks etc. would benefit from the passage of a clear and unambiguous Energy Efficiency Directive with binding targets and measures which force energy efficiency to become a priority for the business community.

How could the split incentive problem be best tackled?

Spilt incentives can be resolved through the full implementation of Buildings Energy Standards (EPBD); attaching the repayments for energy efficiency retrofits to the building (eg Green Deal); the removal of regulatory barriers to aligned incentives (such as protected rents, collective decision making, renter's rights etc.); and the inclusion of energy performance in a buildings' value (fiscal, in sales process literature, mandatory certificate).

2. ***Improving access to financing***
    a. **Are the current EU-level financial tools for energy efficiency in buildings effective? How could the uptake of EU-level funding for energy efficiency (including cohesion policy funding) be improved? As a complement to tailor-made national or regional financial instruments (e.g. set up with a contribution from cohesion policy funds), what could be the future role of centrally-managed financial instruments at EU level in this context?**

The current EU-level financial tools for energy efficiency in buildings have not delivered adequate performance towards the EU's 2020 20% energy efficiency targets – otherwise we would not need the new EED. By this measure, they have been ineffective. Their inadequacy is the result of an unsupportive policy framework (for the reasons previously discussed), barriers to their effectiveness (as identified) and through poor design (trying to do too much with too little and a bottleneck in their form of disbursal – and hence have not been able to be dispersed even though "finance" is widely identified by decision makers as a key barrier).

CS/ Eurima believes that the amount of capital required to meet the EU's 2020 targets for energy efficiency in buildings is in the order of Euro 100 billion per annum (The Commission believes that this amount is Euro 60 billion). Either way EU-level financial tools can - at best – act as catalysts for a deeper and more robust private market response. Significant multiplier effects are needed to make EU-level financial tools effective. The uptake of current EU-level funding (eg. JESSICA and ELENA facilities) would be significantly enhanced if each European region had to submit its regional energy efficiency renovation plan to mesh into the MS' National Road map for energy efficiency which sum across the Member States to deliver the 2020 targets and 2050 EU Roadmap.

CS sees two main roles for centrally managed financial instruments:

i. **Catalytic:** The provision of scarce restricted equity capital (restricted to capitalizing energy efficiency activities) into National policy banks would provide the multiplier-effect support and allow Member States to replicate the success of KfW-style programmes. Furthermore, the provision of certain levels of risk underwriting or performance guarantees to portfolios of home retrofit loans would grow secondary market capacity for the greater provision of private sector balance sheets into the retrofit market (this is ideally performed through an agent like a Policy Bank which possesses the technical expertise to evaluate and manage the risks underwritten – over 90% of the secondary market for mortgage loans in the US is catalyzed by the guarantees from Fannie Mae, Freddie Mac and FHA).
ii. **Provision of Resources to Remove Barriers and Fill Information Gaps**: Where Member States lack resources to implement EED and EPBD or where legitimate information or training gaps can be identified, there should be EU-level resources dedicated to filling those. The removal of barriers may often create resources (eg. Removal of distorting fossil subsidies) and these resources should be channeled into creating energy efficiency demand and addressing the information gaps identified in table 1b, repeated here:

I	**MARKET FAILURES**	**Information failure** : its asymmetric access, the mere lack of available information and its highly technical nature	The provision of adequate information to the right recipients would resolve this failure (as highly technical information is not a problem to – it is required by - highly technical counterparties). National databases should be made available to registered solution providers around energy usage in buildings. Detailed technical information is required by solution providers on retrofit components – especially those relating to cost of installation and energy performance. User interface for unsophisticated buildings owners and tenants should be intuitive, simple and easy to	National and local

			understand and navigate.	
I	**FINANCIAL BARRIERS**	**Information failure** including: The absence of awareness and knowledge among financiers; and a lack of knowledge, resources and capacity to plan viable energy efficiency projects among regions and cities.	The financiers' lack of awareness and knowledge will resolve itself once the market in energy efficiency buildings renovations takes off and involves their institutions. CS does not perceive that financial institutions lack resources, on the contrary their priorities well reflect those of Government, their customers and their regulators. Accelerated use of JESSICA and ELENA and other EU tools to educate regions and cities in the benefits and processes to engage with energy efficiency opportunities are key.	Regional/ Local
I	**MARKET FAILURES**	Many actors in the building sector do not have **adequate training** and knowledge regarding energy efficiency issues	Training resources and facilities for practitioners especially within SMEs and for buildings caretakers/ managers is considered vital and a priority to stimulate the sell-side generated demand for energy efficiency retrofits.	Local
P	**FINANCIAL BARRIERS**	**Biased financial perceptions** about initial costs and pay-back periods	When large amounts of mutually corroborating and supportive data on costs and performance of buildings retrofits become available, these perceptions will change – slowly. The creation and substantiation of these data sets may take years and its unclear that there are any short-circuits to the data – just perhaps underwriting or removal of the risks associated with this data-gap by interested parties.	National

In general, the accelerated uptake of the EU-level financial tools and resources will begin in earnest when Member States adopt an ambitious Directive and become committed to the delivery of their 2020 energy efficiency targets through binding measures (at this point the complaint will be that EU-level resources are insufficient rather than under-used).

b. How could more private financing (both from institutional investors as well as building owners) for energy efficiency projects be mobilised? What would be the role of public funding (both at EU and national level) in this context? Is access to (project development) technical assistance an issue and how could it be provided most efficiently at the national, regional and local level? How could both national and EU financing schemes be improved to best cover all segments of the market (residential, commercial, public buildings, etc.)?

More private financing from institutional investors and building owners for energy efficiency will be mobilized through the implementation of the recommended regulatory changes, the removal of the identified barriers and the provision of resources to fill the identified information and training gaps.

The application of the appropriate "carrot and stick" regulatory framework for buildings owners will unlock their capital and institutional investors will find space in their portfolios for adequately structured secondary market retrofit assets once there is sufficient volume and risk underwriting to justify the ratings process and structuring costs.

"Technical assistance" maybe a relevant resource constraint in the study and preparation of complex industrial or commercial transactions (with Energy Performance Contracts associated) especially when these are being prepared by small ESCOs. "Technical Assistance" is (or the specialized resources provided through TA are) an identified barrier to regional and local policymaking (energy

efficiency roadmaps) and the preparation and execution of Public Buildings tender processes. The identification and promotion of national expert networks and best practice can serve to address the core need for tools, and the existing facilities providing local and regional support can be expanded and promoted with expedited approvals procedures in the case of prior "approved methodologies" for template approaches.

All segments of the market (Residential, Commercial, Public Buildings, etc.) should be segmented and considered by segment at a national and EU level with respect of financing. It is abundantly clear that different segments of the energy efficiency market require different treatment and different instruments (exactly as do different segments of any market). Any single instrument designed to "cover all segments" can only hope to fail resulting from its lack of depth and excess breadth of application. In respect of specific recommendations by segment, CS considered the following as relevant:

i. **Residential**: National and EU-level funding should be directed towards the strengthening of the transparency, information flow and ease of execution for residential buildings decision makers. This funding should be offered in conjunction with "on-bill" repayment possibilities (eg. UK's Green Deal) and fiscal incentives for homeowners (eg. Tax deductibility of retrofit repayments and penalties for energy waste). If "risk buy down" is required (ie lower interest rates and longer tenors are required for deep retrofits than private lenders are willing to offer) then Policy Banks can step in to provide risk buy-down or insurance facilities. Regulatory "sticks" are clearly required to boost engagement among energy suppliers and risk support facilities from Policy Banks will also be useful to encourage private sector banks to accelerate their retail offering of retrofit loans.
ii. **Commercial**: National and EU-level funding should be directed towards the clarification of the regulations around and the smooth functioning of the ESCO market (at a mid-to –large scale) and the removal of the principal-agent barrier. Fiscal "carrot and stick" approaches together with the removal of regulatory barriers may need initial support funding streams to National and Regional Governments charged with these policy development – and hence Technical Assistance maybe of use. In addition, the creation of National databases of energy usage and buildings renovation components and performance maybe helpful.
iii. **Public Buildings**: Technical Assistance is required to provide regions and local authorities with the specialist resources required to plan and execute smooth, open and transparent tenders for the deep renovation of Public Buildings. In addition, small ESCOs and SMEs may require capacity building to be able to tool-up, train and respond to those tenders. Certification costs may also be targeted for financial support to ensure full propagation of EPBD. Public Buildings managers will require training in how to spot energy inefficiency and how to manage an outsourced energy service contractor.

c. Is there a need for guarantee systems related to building efficiency investments? If so, what guarantee systems for efficiency investments would be necessary and how should they be designed? Is there a need for other enabling mechanisms (e.g. risk-sharing, investment vehicles)?

"Guarantee Systems" are understood to mean the guarantee of financial or energy performance of retrofits. Presently manufacturers guarantee the quality and warrant the performance of their materials and machines (eg. HVACs) and systems engineers and architects have procedures and tools to provide surety on the quality of their project management and output. The financial performance of a building retrofit is the complex and dynamic result of the interplay of several parameters (occupant behaviour, base-line, weather, component performance within a system, quality of workmanship, energy prices, interest rate movements, regulatory change). Even assuming that the possible permutations of these parameters could be projected and covered in contract, the resolution of claims and counter claims under such complex contracts would only make economic sense in large projects. If transactions are sufficiently homogenous and executed to a similar set of standards then the aggregation of a large diversified portfolio of them can serve to mitigate against certain risk concentrations such as one-off local weather conditions, specific occupant behaviour, one-off poorly executed or low quality projects; and can allow a portfolio manager to manage energy price and

interest rate risks at a portfolio level (thus making these financial hedges significantly more cost effective). These "Guarantee Systems" could take the form of an equity investment in the highest risk tranche of a energy efficiency retrofit loan securitization or the guarantee against "first loss" on a portfolio of renovation loans of similar characteristics. CS believes that there is a need for a sophisticated intermediary to manage the provision of such instruments to the private sector by a public Policy Bank (such as the KfW or EIB) and that these intermediaries should be the architects of the instruments and enabling mechanisms in-line with and to enable National and EU Energy Efficiency Policy.

d. How could the capacity, knowledge and risk perception regarding energy efficiency investments be improved, both at financial institutions as well as with private investors and administrations at all levels?

Capacity and knowledge regarding energy efficiency investments can be improved within financial institutions and private investors by stimulating the market to work through the removal of the identified barriers to greater energy efficiency, investing resources to fill information gaps and the implementation of an ambitious Directive followed by swiftly executed National Roadmaps. The risk perception of energy efficiency loans will be changed over time as market professionals gain access to portfolios of real performance data sets and see irrefutable evidence that energy efficiency retrofits perform as stated by the buildings renovator.

Administrations' capacity and knowledge on energy efficiency investments will be impacted by their forced focus on energy services management and buildings performance. They will have access to Technical Assistance in the form of specialist resources to help arrange and execute a tender process for the optimal management of buildings energy and/ or training facilities such that their own in-house buildings managers are capable of buying, managing and executing deep renovations of their premises.

e. Are there examples of good practice at national or regional level (with data on costs and benefits) that could be applied more widely?

In 2010, EuroACE[3] identified in excess of 100 financial or fiscal instruments which were in place across Europe and which represented "a total investment of the order of tens of billions of Euros". These core instruments fall into eight categories: Preferential Loans, Subsidies, Grants, Third Party financing, Trading (White/Energy Certificates), Tax Rebates, Tax Deductions and VAT Reductions. From these, CS has been able to identify the following examples of Energy Efficiency finance which can serve as benchmarks with evidence for reference purposes:

Germany and the KfW (as an example of the use of a Policy Bank, the Creation of Standards, Subsidized Interest Rates and the Incentivization of Private Bank Retail Distribution): Germany has 39 million homes of which 75% were constructed before 1979, prior to the introduction of higher energy savings standards. Germany currently refurbishes around 200,000 buildings a year (equating to c. 400,000 homes) and to date has retrofitted 9 million units to high energy-efficiency standards. Existing German homes use around three times more energy for heating than new buildings and energy efficiency investments in deep retrofits have halved the energy use in the buildings treated by KfW since 2002. From 2001–2006, the German Alliance for Work and Environment was very successful in using subsidies to stimulate private sector finance: $5.2 billion of public subsidies stimulated a total investment of $20.9 billion in buildings retrofits creating or maintaining some 140,000 jobs. In addition, the coalition believes around $4 billion of the government input was recovered through tax and needs for unemployment benefits was averted. From 2006-2009, KfW's financing activities across various programs deployed €27 billion in loans and grants leading to a total investment in energy efficient homes of more than €54 billion. KfW's funding has enabled the energy efficient renovation of 1 million homes, and the building of 400,000 new highly efficient homes, and is credited with the creation of 240,000 new jobs per year in the building and building supply-related industries.

[3] "Making Money Work for Buildings" EuroACE, September 2010

UK Green Deal (as example of Mandatory Engagement of Utilities, Use of "on-bill" Finance for Retrofit Repayments and Government Support and Involvement in Organizing the Sector according to a National Retrofit Plan): As a core part of its Energy Markets Reform, launched in 2011, the UK Government is establishing the Green Deal - a framework to enable private firms to offer consumers energy efficiency improvements to their homes and businesses at no upfront cost, and recoup payments through a charge in instalments on their energy bills. Starting in 2012, the Green Deal anticipates the retrofit of over a million homes per annum. The Green Deal looks to provide a maximum of £10,000 investment capital per intervention and is expected to deliver aggregate investment in the region of £7bn–£11bn per year over 15 years, a major ramp up from existing UK Energy efficiency investments of £1–2bn per year. Critical to the success of the Green Deal is the quality assurance provided around the retrofits provided by an accredited Green Deal provider with approved measures and a "Golden Rule" that energy savings should cover the costs of the repayments.

USA PACE (as example of a Municipality-led programme, Use of "On bill" Finance through Tax Receipts and Addressing Attachment to Building Value): Under the PACE program a municipality issues bonds whose proceeds are lent to commercial and residential property owners to finance energy efficiency retrofits and small renewable energy installations. Property owners repay their loans over 15-20 years via an added annual assessment on their property tax bill. PACE enabling legislation has now been passed by twenty seven US states and 14 municipalities have implemented a PACE program so far. PACE is designed to solve two key barriers to increased adoption of energy efficiency and small scale renewable energy: High upfront costs and the fear that project costs won't be recovered prior to a future sale of the property. PACE proponents believe that the basic energy efficiency measures can cut energy costs by up to 35% and that annual energy savings will typically exceed the cost of PACE assessments and so the upfront cost barrier actually turns into improved cash flow for owners. PACE assessments stay with a property upon sale and will be fully repaid by future owners who continue to benefit from the improvement measures.

Italy's White Certificate Programme for Energy Suppliers (as example of functioning energy efficiency mandate for utilities): Italian White Certificates have been in place in Italy since January 2005 (subsequently in France and the UK). They are an obligation on electricity and gas distributors to save energy in the properties and premises to which they distribute. One-third of Italy's expected carbon dioxide savings by 2012 are anticipated to come from the White Certificate activities. The obligation covers 14 electricity distributors and 61 gas distributors. The White Certificates cover all energy end users. Although in principle any fuel can be saved, in practice, electricity accounted for 74.7%, gas for 21.9% and other fuels for only 3.4% of White Certificates issued by the Italian electricity and gas authority, AEEG through 2009. Annual expenditure on White Certificates in 2008 was estimated to be around €200 million (£177 million) per year. Despite being open to saving energy in all sectors, most savings in the period 2005 - 2008 were delivered mainly in the residential electric sector.

3. Strengthening the regulatory framework

f. Is there any need for further EU-level regulation to stimulate energy efficiency investments in buildings beyond the Commission proposal for a new Energy Efficiency Directive? If so, what should these measures entail?

The proposed Energy Efficiency Directive needs to be approved by the European Council and adopted in its current form as supported by the EU Parliament, that is to say with binding Member States targets and measures and the requirement for National Energy Efficiency Roadmaps which are fully funded and point to sufficient financial and technical resources at EU and Member State level. This Directive needs to be Transposed into National Law in Member States in record time and the EU-level funds (as disbursed via the programmes and entities designated) need to be made visible and available to back the roll-out of the regulatory reforms and delivery of the catalyst funds required.

In terms of "new measures" to the extent that the EU's Energy Efficiency Directive is insufficiently clear on its support for the regulatory changes and barrier removal as described in Table 1b, then specific legislation is required to bolster the EED in those areas.

g. What could be specific measures to be taken at national level to implement and complement most effectively the EU-level regulatory framework for energy efficiency?

A National Energy Efficiency Roadmap which is divided into the key segments and lays out 2020 and 2050 objectives for each segment of the markets, together with a coherent set of tools and policies which respond to the requirements of the Energy Efficiency Directive and address the barriers outlined in Table 1b) which refer to the "National" level is required. Together with this plan National Policy Bank funds (where applicable) together with clear indication of public and private budgets required should be combined into a resource plan which provides robust resource kit for the support and execution of the National Roadmap.

h. What are the specific needs for policy guidance and awareness raising among different stakeholder groups

A stakeholder engagement process should be undertaken by reference to the identified Information gaps and through a coherent preparation of communications materials for the different stakeholder groups at National, regional and local levels. Specific central EU-level budgets should be approved and allocated for this purpose to ensure that each level of the policy and private sector stakeholder universe is adequately informed on and timely basis of the implications and responsibilities beholden of it under the new framework.