METREX
The **network** of
European Metropolitan Regions and Areas

Public consultation on the Green Paper on a 2030 framework for climate and energy policies

METREX Response

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- Acknowledging the differing capacity of Member States

METREX detailed response to consultation

Within the context of the METREX general response to the Introduction to the Green Paper, METREX is also happy to provide detailed responses to those questions on which it has practical knowledge and experience.

Background

The METREX response emphasises and advocates the need for recognition of the urban and metropolitan dimension to the key issues for consultation. Such an emphasis can be seen to be fully supportive of the following key EU policy documents.

- Roadmap for moving to a low-carbon economy in 2050 - 2020 and 2050
  Innovation, green growth and jobs
  Saving energy and resources
- Energy efficiency - Buildings, Transport, Industry and Energy
- Roadmap to a Single European Transport Area - Towards a competitive and resource efficient transport system

Supporting attachments

These documents have already been made available to the Commissioners and Directors General for the DG's Energy, Clima and Regio as a basis for discussion.

- Dangerous climate change and urban decarbonisation - A metropolitan response - Insight for Policy Makers
- reMAC Handbook

Public consultation on the Green Paper on a 2030 framework for climate and energy policies

Introduction

The EU has a clear framework to steer its energy and climate policies up to 2020 and is making good progress towards meeting its climate and energy targets for 2020.

But providing clarity on a policy framework for 2030 is also needed, giving more certainty to investors, stimulate innovation and demand for low-carbon technologies and allow the EU to engage actively in the international negotiations for a new climate agreement.

The 2030 framework should build on the experience and lessons from the current framework. It should also take into account the longer term perspective set out by the Commission in the,

- *Roadmap for moving to a competitive low carbon economy in 2050*
- *Energy Roadmap 2050 and the*
- *Transport White Paper*

The Green Paper raises a set of questions e.g. relating to the main lessons from the 2020 framework,

- *Type, nature and level of climate and energy targets for 2030*
- *Coherence between different policy instruments*
- *Competitiveness and security of energy supply*
- *Distribution of efforts between Member States*

This public consultation asks for insights and viewpoints on the basis of the questions included in the Green Paper with a view of informing the on-going work within the Commission of developing a 2030 framework for climate and energy policies.

This framework for 2030 must be sufficiently ambitious to ensure that the EU is on track to meet longer-term climate objectives. But it must also reflect a number of important changes that have taken place since the original framework was agreed in 2008/9,

- *Consequences of the on-going economic crisis*
- *Budgetary problems of Member States and businesses who have difficulty mobilising funds for long term investments*
- *Developments on EU and global energy markets, including in relation to renewables, unconventional gas and oil, and nuclear*
- *Concerns of households about the affordability of energy and of businesses with respect to competitiveness*
- *Varying levels of commitment and ambition of international partners in reducing GHG emissions*

The 2030 framework must draw on the lessons from the current framework: what has worked, what has not worked and what can be improved.

The framework should also take into account the longer term perspective which the Commission laid out in 2011 in the,

- *Roadmap for moving to a competitive low carbon economy in 2050*
- *Energy Roadmap 2050*
- *Transport White Paper*

The European Parliament has adopted resolutions on each of the Roadmaps.

These Roadmaps were developed in line with the objective of reducing GHG emissions by 80 to 95% by 2050 compared to 1990 levels as part of necessary efforts by developed countries as a group.

The scenarios in these Roadmaps suggested the following key findings,

- *By 2030 GHG emissions would need to be reduced by 40% in the EU to be on track to reach a GHG reduction of between 80-95% by 2050, consistent with the internationally agreed target to limit atmospheric warming to below 2°C.*
- *Higher shares of renewable energy, energy efficiency improvements and better and smarter energy infrastructure are "no regrets" options for transforming the EU's energy system.*
- *For renewables, the policy scenarios in the Energy Roadmap 2050 indicate a share of around 30% in 2030.*
- *Significant investments are needed to modernise the energy system, with or without decarbonisation, which will impact the energy prices in the period up to 2030.*

The aim of this Green Paper is to consult stakeholders to obtain evidence and views to support the development of the 2030 framework.

Public consultation on the Green Paper on a 2030 framework for climate and energy policies

Key issues and questions for consultation

- *Targets*
- *Coherence of policy instruments*
- *Fostering the competitiveness of the EU economy*
- *Acknowledging the differing capacity of Member States*

METREX general response to the Introduction to the Green Paper on a 2030 framework for climate and energy policies

The President and Managing Committee of METREX, The Network of European Metropolitan Regions and Areas, would like to bring the work of the Network in the areas of dangerous climate change and decarbonisation to the attention of the Commission in the hope that there may be common interests that can be progressed on a partnership basis.

EUCO2 80/50 project

METREX first took a serious interest in the issue of climate change at its Granada Conference in 2005, when the Keynote Address was given by the UK's Tyndall Centre for Climate Change.

Since then METREX has promoted and progressed the EUCO2 80/50 project (www.euco2.eu), one of the biggest of its kind in Europe, which confirmed the scale and significance of a metropolitan contribution to the reduction of energy demand, through efficiencies and the reduction of waste, and the generation of renewable energy.

EUCO2 80/50 outcomes

It is conceivable and feasible that Europe's major urban areas could become largely self sufficient in renewable energy with all the benefits that this could bring in terms of,

- Substantial energy self sufficiency and sustainability
- Security of energy supply
- Energy supply price stability
- Self funding energy generating investment from energy saving and efficiencies
- Medium term employment creation
- Increased locational advantage and economic competitiveness
- Increased disposable and investment incomes, after the pay back period
- Substantial decarbonisation

A METREX outcome of the EUCO2 80/50 was the development of reMAC, a software tool to enable metropolitan areas to assess their energy saving potential, the extent to which overall energy consumption and demand might be reduced and the extent to which such reduced demand could be met from their own renewable energy generating sources.

reMAC

reMAC is a tool to estimate the financial dimension of regenerative cities. It is being run on a demonstration basis in 10 European metropolitan regions and areas and the initial outcomes confirm that such an approach could be achieved within pay back periods in the range 15-20 years.

METREX has looked at the implications of this approach at the European level (see Attachment). On the basis of readily available published Eurostat data it seems that the energy saving potential of buildings and transport could be of the order of 35% of final energy and the renewable energy generation potential of PV alone of the order of 15% of final energy. The outcome could be greenhouse gas reductions of some 26%.

Clearly if such an approach was taken more comprehensively, using reMAC, then it is not inconceivable that Europe's major urban areas, its metropolitan areas, could make a very significant contribution to EU targets for decarbonisation and the reduction of dangerous greenhouse gas emissions.

Roger Read,
Secretary General,
METREX.

June 2013

METREX response to consultation

Within the context of the above general response to the Introduction to the Green Paper, METREX is happy to provide the following detailed responses to those questions on which it has practical knowledge and experience. ***These are highlighted in bold text below.***

General

- ***Which lessons from the 2020 framework and the present state of the EU energy system are most important when designing policies for 2030?***

METREX response 1

It is clear that most EU greenhouse gas emissions arise from the use of carbon fuels in Europe's urban areas. More specifically, from the 127 metropolitan areas recognised in the Urban Audit, which together include some 60% plus of Europe's population of 500m.

When designing policies for 2030 it will, therefore, be vital that the urban and metropolitan dimensions to dangerous climate change and decarbonisation are recognised. Furthermore, it will also be vital that this recognition goes further and leads to active programmes to promote energy saving and urban renewable energy generation.

The potential of urban energy saving has been recognised in the EU Energy Efficiency Plan but the similar potential to meet the lower levels of consumption achieved by energy saving from urban renewable energy generation has not yet been recognised.

On the basis of progressively retrofitting the EU dwelling stock to Passivhaus standards, continuing to make efficiency gains in the industrial and services building stock at the rate of the past 20 years and moving to electromobility there is the realistic possibility of driving down EU energy demand by 29% over the period to 2030.

As centralised energy generation and distribution is 34% of gross energy consumption, reducing energy demand by 29% will bring additional savings of some 10%. This would more than meet the EU efficiency target of 20% by 2020.

This confirms the conclusions of the EU Energy Efficiency Plan 2011 that, in many ways, energy efficiency can be seen as Europe's biggest energy resource. It also confirms this aspect of the METREX approach.

At the moment renewable energy provides some 15%, or 1.9mGWh, of Europe's final energy demand and solar provides only 4%, or 70,500GWh, of this. Europe's urban photovoltaic (PV) energy generation potential could provide an additional 1.7mGWh of energy, almost equal to the whole of current EU renewable energy production and some 13% of Europe's final energy consumption. It would meet 60% of Europe's current demand for electricity. With decentralised energy saving it would approach the EU 20% by 2020 renewables target alone.

Europe's urban areas can become the green power stations of the future.

Targets

- ***Which targets for 2030 would be most effective in driving the objectives of climate and energy policy? At what level should they apply (EU, Member States, or sectoral), and to what extent should they be legally binding?***

METREX response 2

The way this Question is phrased (EU, Member States or sectoral) illustrates the current lack of an urban and metropolitan dimension to EU Energy and Climate Change policy.

What is needed is a clear, and sectorally integrated, recognition that urban energy saving can fund urban renewable energy generation, that pay back periods would be before 2030, that this would achieve energy security and price stability and that after the payback period savings would be available for further urban investment and/or disposable income.

These are major and self-evident benefits.

The evidence for this approach is contained in the accompanying Attachments - Dangerous climate change and urban decarbonisation - A metropolitan response - Insight for Policy Makers and the reMAC Handbook.

- *Have there been inconsistences in the current 2020 targets and if so how can the coherence of potential 2030 targets be better ensured?*
- *Are targets for sub-sectors such as transport, agriculture, industry appropriate and, if so, which ones? For example, is a renewables target necessary for transport, given the targets for CO2 reductions for passenger cars and light commercial vehicles?*
- *How can targets reflect better the economic viability and the changing degree of maturity of technologies in the 2030 framework?*

- ***How should progress be assessed for other aspects of EU energy policy, such as security of supply, which may not be captured by the headline targets?***

Europe's energy demand can be reduced by 29% from urban energy saving and 27% of this reduced demand can be met by urban generation from PV alone. This means that Europe can achieve 27% energy self-sufficiency and consequent security of supply at stable prices through this source of urban renewable energy by itself. The PV estimates have been made on conservative assumptions of only 50% of available urban roof space (residential, industry and services) being available and only 50% of this being used. In effect, only 25% of roof space being used for PV. There will be significant contributions that can also be made from urban biomass and waste, particularly for heating, and wind, particularly for electricity generation.

Urban energy saving and urban renewable energy generation, through PV alone, can make a major contribution to urban energy self-sufficiency and security of supply at stable prices.

Europe's final energy consumption can be decarbonised by 42% through urban energy saving and urban solar generation alone. If existing renewables are taken into account it can be decarbonised by 50%. This would be a major contribution to the EU target of an 80-95% reduction in greenhouse gases by 2050.

Urban energy saving and urban renewable energy generation, through PV alone, can decarbonise urban energy use by 50% by 2030.

Urban energy demand, for residential, industrial, services and transportation use, amounts to about 59% of final energy use. Urban energy saving and urban solar energy generation can reduce final energy demand by 42%. The implication would be a reduction of 26% in greenhouse gas (GHG) emissions (42% of 59%).

Urban energy saving and urban renewable energy generation, through PV alone, can meet 26% of the EU 2050 greenhouse gas reduction target of 80-95%, by 2030.

Instruments

- *Are changes necessary to other policy instruments and how they interact with one another, including between the EU and national levels?*
- *How should specific measures at the EU and national level best be defined to optimise cost-efficiency of meeting climate and energy objectives?*
- *How can fragmentation of the internal energy market best be avoided particularly in relation to the need to encourage and mobilise investment?*
- *Which measures could be envisaged to make further energy savings most cost-effectively?*
- *How can EU research and innovation policies best support the achievement of the 2030 framework?*

METREX response 3

An EU urban and metropolitan policy approach might encourage Europe's metropolitan areas to,

- Assess the scale and value of their urban energy saving potential
- Assess the scale and value of their urban renewable energy potential
- Consider the extent to which energy saving could fund generation investment and the pay back periods involved
- Explore financial mechanisms to achieve this

reMAC is the tool that has been designed to enable metropolitan areas to carry out such assessments.

The urban and metropolitan contribution to European energy and climate change policy could then be quantified and recognised. It would clearly have an impact on EU, Member State and sectoral policies and implications for targets and instruments.

Metropolitan regions and areas are an essential level for integrated climate change and decarbonisation action. METREX experience is that, at the city level, political targets and mitigation measures do work to a great extent. For example, METREX will be a dissemination partner in the EU supported City-Zen project, which looks at retrofitting towards zero energy buildings, smart low and medium voltage grids and district heating and cooling.

However, at the level of metropolitan regions and areas cooperation is more difficult due the longer-term targets involved. This is the level at which EU support would be particularly beneficial.

Competitiveness and security of supply

- ***Which elements of the framework for climate and energy policies could be strengthened to better promote job creation, growth and competitiveness?***

METREX response 4

The potential financial benefits of the urban energy saving and urban generation approach, summarised above, are very significant. They would progressively deliver some €265bn, to be used to fund the retrofitting and renewable energy investments needed. Funding for such a package could be through private, commercial and public investment, including loans or grants. Commercial investment can be with energy companies, possibly funded through energy bills or mortgages, or with the public sector, possibly funded through local property taxes. Benefits can be shared.

In the medium term an urban retrofitting and generation programme would create direct and indirect employment. For example, direct employment through retrofitting has been estimate at about 17 jobs per €1m invested*. On this basis, and having regard to the multiplier effect of income expenditure and supplier expenditure, there might be of the order of 2.6m direct and 2.6m indirect jobs created and supported by such a programme.
After the investment period, perhaps by 2030 at the latest a sum of some €265bn would then become available for further investment, in the industrial and service sectors, disposable income in the residential sector and investment and disposable income in the transportation sector.

The pay back times in each of Europe's metropolitan areas can only be assessed more accurately through the use of reMAC, which enables the full spectrum of potential urban energy savings and renewable energy resources to be explored, priced and programmed.

Urban energy saving can fund urban energy generation, create significant employment in the medium term and significant investment and disposable income in the longer term.

Competitiveness and security of supply continued

- *What evidence is there for carbon leakage under the current framework and can this be quantified? How could this problem be addressed in the 2030 framework?*
- *What are the specific drivers in observed trends in energy costs and to what extent can the EU influence them?*
- *How should uncertainty about efforts and the level of commitments that other developed countries and economically important developing nations will make in the on-going international negotiations be taken into account?*
- *How to increase regulatory certainty for business while building in flexibility to adapt to changing circumstances (e.g. progress in international climate negotiations and changes in energy markets)?*
- *How can the EU increase the innovation capacity of manufacturing industry? Is there a role for the revenues from the auctioning of allowances?*

- ***How can the EU best exploit the development of indigenous conventional and unconventional energy sources within the EU to contribute to reduced energy prices and import dependency?***
- ***How can the EU best improve security of energy supply internally by ensuring the full and effective functioning of the internal energy market (e.g. through the development of necessary interconnections), and externally by diversifying energy supply routes?***

METREX response 5

The outcome of the METREX approach at the national level is significant in terms of sustainability and decarbonisation. Most countries would be able to reduce their final energy demand by 40% and many by more than this. It is significant that some countries facing population decline could benefit from reductions in the range 50-70%.

The reduced European energy demand of some 5.5m GWh is equivalent to 625GW of generating capacity or 625 1GW power plants. Over the period to 2030 Europe will need to replace aging centralised generating capacity and the urban retrofit/renewables generation decentralised approach would be much more cost effective, and beneficial, to Europe and nation states.

Major reductions in final energy demand, at the national level, will bring a range of significant benefits, including, lower energy costs, investment funds, increased disposable income and greenhouse gas emission reductions. A decentralised approach to future generating capacity will be more cost effective in economic and environmental terms.

Capacity and distributional aspects

- *How should the new framework ensure an equitable distribution of effort, among Member States? What concrete steps can be taken to reflect their different abilities to implement climate and energy measures?*
- *What mechanisms can be envisaged to promote cooperation and a fair effort sharing between Member States whilst seeking the most cost-effective delivery of new climate and energy objectives?*
- *Are new financing instruments or arrangements required to support the new 2030 framework?*

METREX response 6

The energy saving funds that would become progressively available could begin by funding generating investment and, after this stage, become available for other forms of productive economic investment in the industrial, services and transportation sectors (public and private) and offer increased disposable income in the residential sector. The use of reMAC enables these possibilities to be evaluated in detail at the metropolitan level and pay back periods to be explored.

A key issue will be the relative cost of carbon fuels and renewable energy. There can be little doubt that the cost of carbon fuels will increase as sources of supply become more expensive. Carbon taxes will also affect price. Renewable energy technologies are likely to reduce in price as production capacity is increased. The cost effectiveness of an urban retrofit/urban generation approach is, therefore, likely to improve with time.

A further key issue will be the extent to which rising demand for energy is offset by efficiency savings, for example, in new industrial equipment, new services technologies and new domestic appliances. As and example, the European Environment Agency (EEA) has found that, over the last 20 years, residential energy consumption has increased by 8% but that this was offset by efficiency gains of 24%. Such trends would only increase the financial benefits of an urban retro fitting/generation approach by lowering demand even further.

The METREX approach looks at urban energy firstly from an economic point of view but recognises that this is also the route to successful decarbonisation and GHG reduction.

METREX is in the process of rolling out the use of reMAC across Europe's metropolitan regions and areas because it recognises that it is the most effective way in which to implement the METREX approach to dangerous climate change and decarbonisation. Ten metropolitan areas are in the process of running reMAC and the results will be reflected in the above table.

reMAC is the most effective tool available to demonstrate the costs, benefits and pay back periods for an urban retro fitting/generation approach to dangerous climate change and decarbonisation.

Pay back periods have already been shown to be in the range 10-15 years, after which the significant investment and disposable income benefits become available.

Background

Roadmap for moving to a low-carbon economy in 2050

The European Commission is looking at cost-efficient ways to make the European economy more climate-friendly and less energy consuming. By 2050, the European Union could cut most of its greenhouse gas emissions. Clean technologies are the future for Europe's economy.

2020

For 2020, the EU has made a unilateral commitment to reduce overall greenhouse gas emissions from its 27 Member States by 20% compared to 1990 levels.

The EU is making good progress towards delivering on these commitments. In 2011, combined greenhouse gas emissions from all 27 Member States were 18.4% below the 1990 level, while over the same period the EU economy (measured by Gross Domestic Product) grew by over 40%. Taking into account international aviation, which is covered by the climate and energy package, the emission reduction is slightly lower at 17%.

To reach the 2020 reduction targets, emission cuts will be needed not only in sectors covered by the EU Emissions Trading System (EU ETS) but also in the areas of the economy that are outside the EU ETS, such as,

- ***Buildings***
- ***Agriculture***
- ***Waste management and***
- ***Transport (except aviation)***

Under the 'Effort Sharing Decision' all Member States have taken on binding greenhouse gas emission targets covering the non-ETS sectors for each year of the 2013–2020 period.

Each Member State's progress towards meeting its national emission targets, as well as the renewable energy and energy efficiency targets, is assessed every spring as part of the so-called European Semester. The Commission makes country-specific recommendations as appropriate.

2050

The Roadmap suggests that, by 2050, the EU should,

- ***Cut its emissions to 80% below 1990 levels through domestic reductions alone. It sets out milestones, which form a cost-effective pathway to this goal - reductions of the order of 40% by 2030 and 60% by 2040.***

Innovation, green growth and jobs

The transition to a low-carbon society would boost Europe's economy thanks to increased innovation and investment in clean technologies and low- or zero-carbon energy.

A low-carbon economy would have a much greater need for,

- ***Renewable sources of energy***
- ***Energy-efficient building materials***
- ***Hybrid and electric cars***
- ***'Smart grid' equipment***
- ***Low-carbon power generation***
- ***Carbon capture and storage technologies***

To make the transition the EU would need to invest an additional €270 billion or 1.5% of its GDP annually, on average, over the next four decades. The extra investment would take Europe back to the investment levels seen before the economic crisis, and would spur growth within a wide range of manufacturing sectors and environmental services.

Up to 1.5 million additional jobs could be created by 2020 if governments used revenues from CO2 taxes and from auctioning of emission allowances to reduce labour costs.

Saving energy and resources

- ***Energy efficiency will be a key driver of the transition***

By moving to a low-carbon society, the EU could be using around 30% less energy in 2050 than in 2005. Households and businesses would enjoy more secure and efficient energy services.

More locally produced energy would be used, mostly from renewable sources. As a result, the EU would be less dependent on expensive imports of oil and gas and less vulnerable to increases in oil prices. On average, the EU could save € 175-320 billion annually in fuel costs over the next 40 years.

Energy efficiency

The climate and energy package does not address the energy efficiency target directly. This is being done through the 2011 Energy Efficiency Plan and the Energy Efficiency Directive.

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 has therefore developed this comprehensive new Energy Efficiency Plan.

The combined effects of full implementation of the existing and new measures will transform our daily life and have the potential to generate financial savings of up to €1000 per household every year; improve Europe's industrial competitiveness; create up to 2 million jobs; and reduce annual greenhouse gas emissions by 740 million tons.

Buildings

- ***The greatest energy saving potential lies in buildings.***

The plan focuses on instruments to trigger the renovation process in public and private buildings and to improve the energy performance of the components and appliances used in them. It promotes the exemplary role of the public sector, proposing to accelerate the refurbishment rate of public buildings through a binding target and to introduce energy efficiency criteria in public spending. It also foresees obligations for utilities to enable their customers to cut their energy consumption.

Transport

- **Transport has the second largest potential.**

This will be addressed by the upcoming White Paper on Transport (see below).

Industry

Energy efficiency in industry will be tackled through energy efficiency requirements for industrial equipment, improved information provision for SMEs and measures to introduce energy audits and energy management systems.

Energy

Improvements to the efficiency of power and heat generation are also proposed, ensuring that the plan includes energy efficiency measures across the whole energy supply chain.

Roadmap to a Single European Transport Area - Towards a competitive and resource efficient transport system

The European Commission adopted a roadmap of 40 concrete initiatives for the next decade to build a competitive transport system that will increase mobility, remove major barriers in key areas and fuel growth and employment. At the same time, the proposals will dramatically reduce Europe's dependence on imported oil and cut carbon emissions in transport by 60% by 2050.

By 2050, key goals will include,

- ***No more conventionally-fuelled cars in cities***
- ***40% use of sustainable low carbon fuels in aviation***
- ***40% cut in shipping emissions***
- ***50% shift of medium distance intercity passenger and freight journeys from road to rail and waterborne transport***

All of which will contribute to a 60% cut in transport emissions by the middle of the century.