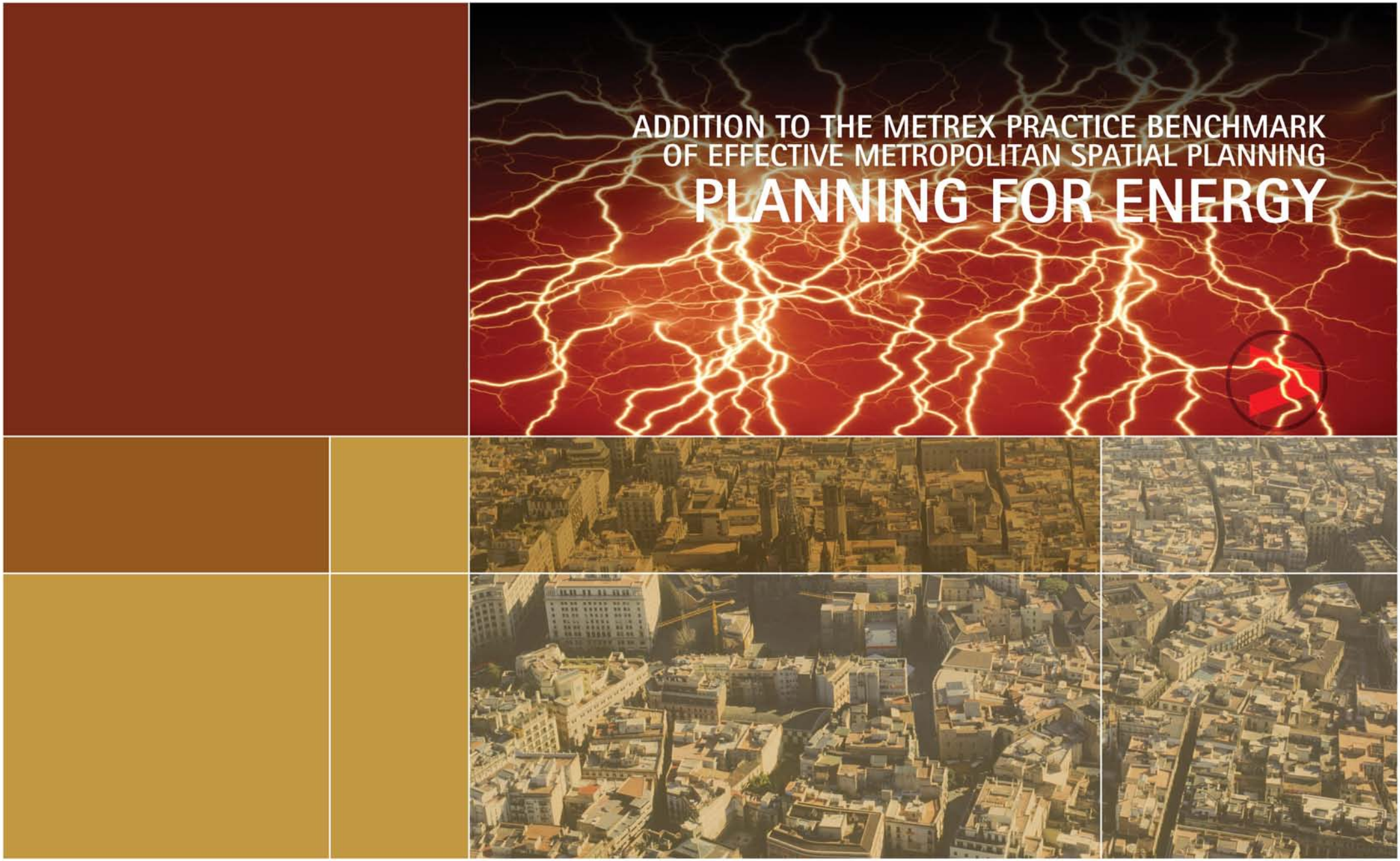

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METREX
The **network** of
European Metropolitan Regions and Areas

3 ADDITION TO THE METREX PRACTICE BENCHMARK OF EFFECTIVE METROPOLITAN SPATIAL PLANNING

BACKGROUND

The EUCO2 80/50 project was promoted by METREX in 2008 to explore an appropriate and effective metropolitan response to the issue of greenhouse gas emissions. It has been led by the Metropolregion Hamburg and uses the innovative Greenhouse gas Regional Inventory Protocol or GRIP. GRIP is a computer-based tool for the investigation of mitigation options.

EUCO2 80/50 involved 14 European metropolitan areas running GRIP during 2010. Some 450 stakeholders, from all the interests with a role to play in mitigation, participated in over 40 exploratory Workshops. The full report on the EUCO2 80/50 project can be downloaded from www.euco2.eu

The outcome was confirmation that a target of 80% could indeed be achieved in metropolitan areas.

Introduction

METREX participated fully in the Workshop programme other than one, where severe weather made this impossible. METREX was a full partner in the EUCO2 80/50 project and participated in order to be able to assess the benefits of the energy planning process at the metropolitan level and to then offer an addition to the METREX Benchmark of effective metropolitan spatial planning practice (2006).

This addition follows as an outcome of the EUCO2 80/50 project for Members.

E>MA

However, although the Planning for Energy Benchmark is of value in its own right it became apparent during the project that it would be possible to produce an energy planning tool to enable metropolitan planners to explore energy as an aspect of spatial planning and development and to consider options to reduce energy waste, lower energy consumption and demand and meet this demand from urban renewable energy resources.

E>MA has now been produced and will be available shortly for the use of METREX Members on-line.

PLANNING FOR ENERGY

In identifying the strategic energy development issues and options a metropolitan body will normally need to consider the energy demand and supply situation over the adopted plan period and appropriate policy responses.

BENCHMARK

Planning for energy in metropolitan areas should normally include

1. An analysis of socio-economic futures over the EU planning period to 2050 and the adopted longer-term metropolitan planning period.
2. An assessment of the metropolitan energy supply potential of the existing building stock, transportation and external energy sources from consumption reduction and energy generation.
3. An assessment of the balance of longer-term energy demand from domestic, industrial and commercial and transportation development.
4. An analysis of the longer-term balance of metropolitan energy supply and demand from renewable energy and the residual need for carbon capture and storage (CCS).
5. An assessment of the renewable energy investment options to meet longer-term demand.
6. An energy development investment programme for the medium and longer-term.
7. An assessment of metropolitan energy self-sufficiency, security and decarbonisation.

INDICATORS FOR THE BENCHMARK	EFFECTIVENESS
Planning for energy - On what basis does the metropolitan body assess longer-term energy demand and supply? a. Does the Metropolitan Spatial Plan include an assessment of longer-term energy supply and demand, including consideration of urban energy wastage and urban renewable energy generation? b. Does the Metropolitan Spatial Plan include an energy development investment plan? c. Does the Plan enable an assessment to be made of energy self-sufficiency and security? d. Does the Plan enable an assessment to be made of decarbonisation?	Minimum Increasing Maximum

Energy self-sufficiency and security and decarbonisation

Climate change is a key issue for metropolitan areas because they are the primary source of greenhouse gases. Greenhouse gases are emitted most significantly through the use of fossil fuels. Metropolitan areas are now able to produce inventories of their greenhouse gases through standard information provided annually to the International Panel on Climate Change (IPCC) by nation states. There are also local sources of such information.

Inventories will normally show the main categories of development (domestic, industrial, commercial) and modes of transport (road, rail, maritime, air) and their emissions by type of greenhouse gas. For comparison greenhouse gases are normally converted to carbon dioxide equivalents.

The European Union (EU), through the Council of Ministers, has recognised that greenhouse gas emissions have to be reduced by 80-95% by 2050, over their 1990 levels, if the risk of dangerous climate change is to be avoided. The EU has also recognised that the European economy has to be de-coupled from its dependency on carbon fuels and that future energy security and price stability will depend on a switch to renewable energy.

Spatial planning and development has a role to play in assessing the metropolitan potential to reduce the wastage of urban energy, the lowering of energy consumption and future demand and the generation of renewable energy within metropolitan areas, including their areas of influence to meet this lower demand. It has a role to play in the decarbonisation of metropolitan economies and the promotion of their future energy self-sufficiency and security.

The following diagram shows the relationships between the components of the planning for energy process.

3 ADDITION TO THE METREX PRACTICE BENCHMARK OF EFFECTIVE METROPOLITAN SPATIAL PLANNING

PLANNING FOR ENERGY PROCESS

The planning for energy process looks to the longer-term horizon of the EU, to 2050, and also to the normal longer-term horizons of the metropolitan planning process, that is, some 15-20 years ahead or to 2025-2030.

Forecasts of socio-economic change to these time horizons will enable estimates of future energy demand to be made, having regard to such factors as numbers of households, economic structure and employment, behavioural change (for example in the use of domestic appliances or car ownership and usage), patterns of consumer spending and technological change.

Such socio-economic forecasts will also inform estimates of future demand for residential, industrial and commercial development (see also the related METREX Practice Benchmarks for these sectors), mobility and transportation.

The 2009 EU Directive on the energy performance of buildings indicates that,

Buildings are responsible for 40% of energy consumption and 36% of EU CO2 emissions. Improving the energy performance of buildings is a cost-effective way of fighting against climate change and improving energy security, while also creating job opportunities, particularly in the building sector. Under this Directive, the Member States must apply minimum requirements as regards the energy performance of new and existing buildings, ensure the certification of their energy performance and require the regular inspection of boilers and air conditioning systems in buildings.

The standards set by the Directive, in comparison with the standards of the existing building stock in many metropolitan areas, reveal the scope for energy consumption reduction. New buildings with high levels of insulation and energy efficiency also have potential for energy generation through the use air heat pumps. All buildings, existing and new, have potential for energy generation, for example, from solar sources or micro wind generation. The prospects for climate change will affect all aspects of urban energy demand.

Such assessments will then enable an informed view to be taken of the balance of energy demand and supply over the chosen plan periods.

Energy demand for renewable energy can be considered together with residual demand for carbon fuels that cannot be substituted. Such residual demand will require carbon capture and storage (CCS). There may also be industrial processes, such as cement manufacture, that emit greenhouse gases requiring CCS.

The options for renewable energy supply can then be assessed in detail, in terms of the capacity of the existing and new building stock to generate energy and the energy generating capacity of the wider metropolitan area, for example, for micro decentralised installations or macro generating plant (for example, for solar and wind farms and biomass plants). Provision for electromobility and hydrogen power s=production and supply, through charging points and stations can be considered.

Finally, a longer-term investment programme for retro-fitting and renewable energy generation can be developed, and compared to prospective energy savings from consumption and demand reduction. Pay back periods can be assessed and the economic benefits to the metropolitan economy can be quantified. The potential for energy self-sufficiency and energy security will become apparent. The prospects for decarbonisation can then be appreciated.

E>MA

E>MA is a tool to enable metropolitan planners to explore energy as an aspect of spatial planning and development and to consider options to reduce energy waste, lower energy consumption and demand and meet this demand from urban renewable energy resources. A consequence will then be the effective decarbonisation of their energy supplies in support of the EU target of an 80-95% reduction in greenhouse gas emissions.

E>MA also enables the broad costs and benefits of waste reduction and urban renewable energy provision to be assessed and the investment required to be quantified and specified.

E>MA has been developed by METREX as an outcome of the EUCO2 80/50 (2010) project. METREX acknowledges the value of GRIP - the Greenhouse gas Regional Inventory Protocol - used in the EUCO2 80/50 project as tool for the engagement of metropolitan stakeholders with issues of mitigation.