



COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 22.11.2007
COM(2007) 723 final

**COMMUNICATION FROM THE COMMISSION TO THE COUNCIL, THE
EUROPEAN PARLIAMENT, THE EUROPEAN ECONOMIC AND SOCIAL
COMMITTEE AND THE COMMITTEE OF THE REGIONS**

A EUROPEAN STRATEGIC ENERGY TECHNOLOGY PLAN (SET-PLAN)

'Towards a low carbon future'

{SEC(2007) 1508}
{SEC(2007) 1509}
{SEC(2007) 1510}
{SEC(2007) 1511}

**COMMUNICATION FROM THE COMMISSION TO THE COUNCIL, THE
EUROPEAN PARLIAMENT, THE EUROPEAN ECONOMIC AND SOCIAL
COMMITTEE AND THE COMMITTEE OF THE REGIONS**

A EUROPEAN STRATEGIC ENERGY TECHNOLOGY PLAN (SET-PLAN)

(Text with EEA relevance)

*"We are facing major challenges which do not stop at national borders. The European Union
is our response to these challenges."*

***– Declaration on the occasion of the fiftieth anniversary of the signature of the Treaties of
Rome, Berlin 2007***

**1. THE NEED FOR A EUROPEAN STRATEGIC ENERGY TECHNOLOGY PLAN (SET-
PLAN)**

Technology is vital piece of the Energy Policy jigsaw

Europe needs to act now, together, to deliver sustainable, secure and competitive energy. The inter-related challenges of climate change, security of energy supply and competitiveness are multifaceted and require a coordinated response. We are piecing together a far-reaching jigsaw of policies and measures: binding targets for 2020 to reduce greenhouse gas emissions by 20% and ensure 20% of renewable energy sources in the EU energy mix; a plan to reduce EU global primary energy use by 20% by 2020; carbon pricing through the Emissions Trading Scheme and energy taxation; a competitive Internal Energy Market; an international energy policy. And now, we need a dedicated policy to accelerate the development and deployment of cost-effective low carbon technologies.

Harnessing technology is vital to achieve the Energy Policy for Europe objectives adopted by the European Council on 9 March 2007¹. To meet the targets, we need to lower the cost of clean energy and put EU industry at the forefront of the rapidly growing low carbon technology sector. In the longer term, new generations of technologies have to be developed through breakthroughs in research if we are to meet the greater ambition of reducing our greenhouse gas emissions by 60-80% by 2050.

¹ European Council conclusions adopted on the basis of the Commission's Energy Package, e.g. the Communications: 'An Energy Policy for Europe' COM(2007)1, 'Limiting global climate change to 2 degrees Celsius' COM(2007)2 and 'Towards a European Strategic Energy Technology Plan' COM (2006)847

Today we are falling short

Current trends and their projections into the future show that we are not on a pathway to meet our energy policy objectives. Since the oil price shocks in the 70s and 80s, Europe has enjoyed inexpensive and plentiful energy supplies. The easy availability of resources, no carbon constraints and the commercial imperatives of market forces have not only left us dependent on fossil fuels, but have also tempered the interest for innovation and investment in new energy technologies. This has been described as the greatest and widest-ranging market failure ever seen.

Public and private energy research budgets in the EU have declined substantially since peaking in the 1980s in response to the energy price shocks. This has led to an accumulated under-investment in energy research capacities and infrastructures. If EU governments were investing today at the same rate as in 1980, the total EU public expenditure for the development of energy technologies would be four times the current level of investment of around 2.5 billion euros per year.

Intrinsic weaknesses in energy innovation

The energy innovation process, from initial conception to market penetration, also suffers from unique structural weaknesses. It is characterised by long lead times, often decades, to mass market due to the scale of the investments needed and the technological and regulatory inertia inherent in existing energy systems. Innovation faces entrenched 'locked-in' carbon-based infrastructure investments, dominant actors, imposed price caps, changing regulatory frameworks and network connection challenges.

The market take-up of new energy technologies is additionally hampered by the commodity nature of energy. New technologies are generally more expensive than those they replace while not providing a better energy service. The immediate benefits tend to accrue to society rather than the buyers. Some technologies face social acceptance issues and often require additional up-front integration costs to fit into the existing energy system. Legal and administrative barriers complete this innovation averse framework.

In short, there is neither a natural market appetite nor a short-term business benefit for such technologies. This market gap between supply and demand is often referred to as the 'valley of death' for low carbon energy technologies. Public intervention to support energy innovation is thus both necessary and justified.

Europe should lead the world in energy technologies

Member States working alone will have difficulty in creating the conditions necessary to allow industry to compete in global markets. The main global players, the United States and Japan, but also emerging economies such as China, India and Brazil, are facing the same challenges and are multiplying their efforts to develop and commercialise new energy technologies. In the past two years, Japan adopted a strategic energy technology roadmap and the US adopted climate change science and technology programmes. Their market size, investment and research capacities far exceed those of most Member States. This is

compounded by the fragmentation, multiple non-aligned research strategies and sub-critical capacities that remain a prevailing characteristic of the EU research base.

The EU is leading the world in responding to climate change by adopting targets and putting a price on carbon through the Emissions Trading Scheme, as well as creating a truly internal energy market. We must act with equal determination and ambition on a policy for low carbon technologies. These are the conditions to catalyse a new industrial revolution. In a carbon constrained world, the mastery of technology will increasingly determine prosperity and competitiveness. If we fall behind in the intensifying global race to win low carbon technology markets, we may need to rely on imported technologies to meet our targets, missing out on huge commercial opportunities for EU businesses.

Time is of the essence

The transition to a low carbon economy will take decades and touch every sector of the economy, but we cannot afford to delay action. Decisions taken over the next 10-15 years will have profound consequences for energy security, for climate change, for growth and jobs in Europe. The cost of action may be high, but the price of inactivity much higher. As an illustration of the scale of the problem, the Stern report² estimates that the cost of action could be limited to around 1% of global GDP per year, while inaction could result in losing 5-20% of global GDP annually.

2. ACHIEVING THE POLITICAL VISION

The vision is of a Europe with a thriving and sustainable economy, with world leadership in a diverse portfolio of clean, efficient and low-carbon energy technologies as a motor for prosperity and a key contributor to growth and jobs. A Europe that has grasped the opportunities lying behind climate change and globalisation and that is contributing to addressing the global energy challenge, including increasing access to modern energy services in the developing world.

Energy efficiency

First and foremost, we need a step change in efficiency in energy conversion, supply and end-use. In transport, buildings and industry, available technology opportunities must be turned into business opportunities. We need to fully harness the potential for information and communication technologies and organisational innovation, as well as use public policy and market-based instruments³ to manage demand and encourage new markets. Several policies and measures are already in place to drive this process, notably the Energy Efficiency Action Plan and the Freight Logistics Action Plan, and the directives on Eco-design and on Energy Labelling of Energy Using Products, on Energy Services and on Building Performance. Other measures are in the pipeline, for example on CO₂ emissions from cars, the Action Plan on Urban Mobility, a new phase of the Emissions Trading Scheme, and the initiatives on lead markets, sustainable production and consumption and sustainable industrial policy.

² Stern Review on the Economics of Climate Change – UK HM Treasury

³ COM(2007)140 of 28.3.2007, Green Paper on market based instruments

Achieving the 2020 targets

For 2020, the technologies that will contribute to achieving the targets are available today or in the final stages of development. Low-carbon technologies in general remain expensive and face market penetration obstacles. Energy efficient technologies tend to have high upfront costs which deter market take-up. A twin-track approach is therefore needed: reinforced research to lower costs and improve performance; and pro-active support measures to create business opportunities, stimulate market development and address the non-technological barriers that discourage innovation and the market deployment of efficient and low carbon technologies.

Key EU technology challenges for the next 10 years to meet the 2020 targets:

- *Make second generation biofuels competitive alternatives to fossil fuels, while respecting the sustainability of their production;*
- *Enable commercial use of technologies for CO₂ capture, transport and storage through demonstration at industrial scale, including whole system efficiency and advanced research;*
- *Double the power generation capacity of the largest wind turbines, with off-shore wind as the lead application;*
- *Demonstrate commercial readiness of large-scale Photovoltaic (PV) and Concentrated Solar Power;*
- *Enable a single, smart European electricity grid able to accommodate the massive integration of renewable and decentralised energy sources;*
- *Bring to mass market more efficient energy conversion and end-use devices and systems, in buildings, transport and industry, such as poly-generation and fuel cells;*
- *Maintain competitiveness in fission technologies, together with long-term waste management solutions;*

Achieving the 2050 vision

To achieve the 2050 vision, towards complete decarbonisation, we need to develop a new generation of technologies through major breakthroughs. Even if some of these technologies will have little impact by 2020, it is vital that we reinforce efforts today to ensure that they come on-stream as early as possible. We also have to plan for major organisational and infrastructure changes.

Key EU technology challenges for the next 10 years to meet the 2050 vision:

- *Bring the next generation of renewable energy technologies to market competitiveness;*
- *Achieve a breakthrough in the cost-efficiency of energy storage technologies;*
- *Develop the technologies and create the conditions to enable industry to commercialise*

hydrogen fuel cell vehicles;

- *Complete the preparations for the demonstration of a new generation (Gen-IV) of fission reactors for increased sustainability;*
- *Complete the construction of the ITER fusion facility and ensure early industry participation in the preparation of demonstration actions;*
- *Elaborate alternative visions and transition strategies towards the development of the Trans-European energy networks and other systems necessary to support the low carbon economy of the future;*
- *Achieve breakthroughs in enabling research for energy efficiency: e.g. materials, nano-science, information and communication technologies, bio-science and computation.*

A collective endeavour to deliver results

Meeting the targets in 2020 and the vision for 2050 is a significant challenge that can be tackled most effectively as a collective endeavour.

Some technology challenges require critical mass and large-scale investment and bring with them a risk which cannot be met by the market, by Member States acting individually or by the current model of European collaborative research. The EU can respond to this challenge by evolving towards a new model of focussed cooperation, making use of the full potential of the European Research and Innovation Area and the Internal Market.

Member States, the Community, industry and research organisations all have different roles to play within a coherent overall effort. Achieving our ambitious goals will require a fundamental departure from current practice throughout the innovation system, striking the right balance between cooperation and competition at national, European and global levels.

Action by the private sector

The private sector is at the forefront of these efforts. The industrial revolution that will be catalysed by the move towards world-wide low carbon growth represents a unique opportunity for European industry. A long term and stable policy framework is essential, but to take best advantage of this opportunity, industry should be prepared to increase investment and take greater risks.

Setting up strategic alliances is necessary for industry to share the burden and benefits of research and demonstration. There is room for better exploiting the synergies between technologies (e.g. in the automotive sector, between hybrid vehicles, fuel cells, biofuels and gas). Industry should also join forces to take a more pro-active stance on the elaboration of global regulations and standards and to overcome the often complex issues surrounding the public acceptance of new technologies.

Recent studies show that there is still room for substantial growth in private capital being invested in European clean energy⁴. The financial sector, including private equity and venture capital, needs to adapt their risk profiles to invest more in potentially high-growth small and medium size enterprises and spin-offs, to benefit from the huge prospects for low carbon technologies.

Action at national level

Member States have to deliver their contributions to the 20% targets agreed for 2020, and to put their energy systems on a pathway toward decarbonisation by 2050.

A dedicated and substantial effort on energy technology can help achieve the targets in a way that maximises the benefits for Member States and limits the costs.

The actions of the Member States should aim at increasing investment and provide clear market signals to reduce the risks and stimulate industry to develop more sustainable technologies. For example, by designing smart incentive schemes that stimulate innovation and create value chains, rather than unduly distorting competition or subsidising technologies that have the highest short term potential.

Tax incentives⁵ and Community instruments implemented at national level, such as Structural Funds, can be used to strengthen the research base, build innovation capacity, promote excellence and increase the human resources available to the sector. Strengthening the implementation, monitoring and review of national programmes and measures and seeking out a better coherence and alignment with other Member States and Community efforts would also pay dividends.

Action at Community level

A new Community approach in the field of energy technologies is crucial to achieve the objectives of the SET-Plan. The Community is the vehicle that can:

- Enable the pooling of resources and sharing of risks to develop new technologies that offer huge potential but are currently far from market competitiveness and are beyond the means of individual countries.
- Facilitate strategic planning at both the technology and energy system levels to ensure a common approach to problems that have a cross-border dimension, such as networks, as well as to optimise the transition towards the energy system of the future.
- Permit a better gathering and sharing of data and information to support sound energy technology policy making and guide investment decisions.
- Ensure coherence and critical mass in international cooperation efforts.

⁴ e.g. 'Global Trends in Sustainable Energy Investment 2007', United Nations Environment Programme and New Energy Finance Ltd.

⁵ COM(2006)728 of 22.11.2006 on the use of tax incentives in favour of R&D

- Address common problems and non-technological barriers, such as public acceptance and awareness of new technologies, to arrive at common solutions with wide applicability.

The Research Framework Programmes and the Competitiveness and Innovation Framework Programme are the main tools through which actors across the EU currently work together on technological innovation projects.

These Community programmes should be better used to catalyse the actions of Member States and the private sector, taking them to new dimension by evolving towards a paradigm of steering and co-financing joint programmes rather than projects. This calls for a change in the way these programmes are implemented. The proposed Fuel Cell and Hydrogen Joint Technology Initiative⁶ is a prime example of such a change, with Community Research Framework Programme funding being used to co-finance a programme of research and demonstration with industry in a new, European public-private partnership.

Action at global level

In a world in which energy demand is still increasing and Europe's share of greenhouse emissions is set to fall from 15% to 10% by 2030, a global effort and cooperation are needed to address the global challenges.

We need to take our international cooperation on energy technology to a new level, in the same way as the Emissions Trading Scheme is being used to catalyse the development of a global cap and trade system for carbon. If we are unable to create a global market appetite for low carbon technologies and ensure their widespread take-up, then achieving our ambitious goals could result in much wasted effort and resources – a high cost strategy for our business and society.

3. OBJECTIVES OF THE SET-PLAN

We need to use the ambition and the targets of the Energy Policy for Europe to create a new European policy for energy technology.

Existing measures taken over recent years have provided a foundation for further EU action. The creation of European Technology Platforms has brought together stakeholders to define common research agendas and deployment strategies. The European Research Area (ERA)-Net instrument has initiated moves towards common research programming between Member States. Networks of Excellence have given research centres the opportunity to work together in specific fields.

Building on this momentum, the SET-Plan will focus, strengthen and give coherence to the overall effort in Europe, with the objective of accelerating innovation in cutting edge European low carbon technologies. In doing so, it will facilitate the achievement of the 2020 targets and the 2050 vision of the Energy Policy for Europe.

⁶ COM(2007)571 of 9.10.2007

The SET-Plan proposes to deliver the following results: (i) a new joint strategic planning, (ii) a more effective implementation, (iii) an increase in resources, and (iv) a new and reinforced approach to international cooperation.

4. JOINT STRATEGIC PLANNING

A new way of working at Community level requires an inclusive, dynamic and flexible means of guiding this process, defining priorities and proposing actions – a collective approach to strategic planning. Decision-makers in the Member States, industry, and the research and financial communities have to start to communicate and take decisions in a more structured and mission-oriented way, conceiving and implementing actions together with the EC within a cooperative framework. We need a new governance structure.

European Community Steering Group on Strategic Energy Technologies

To steer the implementation of the SET-Plan, reinforcing the coherence between national, European and international efforts, the Commission will, in early 2008, establish a Steering Group on Strategic Energy Technologies. The Group, chaired by the Commission, will be composed of high level government representatives from Member States. The mandate of the group will be to conceive joint actions, through coordinating policies and programmes, make resources available and monitor and review progress in a systematic manner, fully geared towards reaching our common objectives.

The Commission will organise a European Energy Technology Summit in the first half of 2009. The objective would be to bring together and engage all stakeholders in the entire innovation system, from industry to customers, as well as representatives of the European institutions, the financial community and our international partners. This event would be an opportunity to review progress, disseminate achievements and foster cross-fertilisation between sectors.

European Energy Technology Information System

Effective strategic planning in the Steering Group requires regular and reliable information and data. To support the definition of energy technology objectives, as well as to build consensus around the SET-Plan programme, the Commission will establish an open-access information and knowledge management system. It will include 'technology mapping' (state of the art, barriers and potential of technologies) and 'capacities mapping' (financial and human resources) developed by the Commission's Joint Research Centre⁷. The system will assist the regular reporting of the progress of the SET-Plan and inform energy policy making through the Energy Market Observatory and the biennial Strategic Energy Review.

⁷ See Commission Staff Working Documents SEC(2007)1510 'Technology Map' and SEC(2007)1511 'Capacities Map'

5. EFFECTIVE IMPLEMENTATION - WORKING TOGETHER AT COMMUNITY LEVEL

To accelerate the development and market introduction processes we need more focussed and powerful mechanisms that can leverage the potential of public intervention, European industry and researchers.

5.1. European Industrial Initiatives

European Industrial Initiatives aim to strengthen industrial energy research and innovation by mobilising the necessary critical mass of activities and actors. Geared towards measurable objectives in terms of cost reduction or improved performance, they will focus and align the efforts of the Community, Member States and industry to achieve common goals. They will target sectors for which working at Community level will add most value – technologies for which the barriers, the scale of the investment and risk involved can be better tackled collectively.

Based on the results of the consultation process, the Commission proposes to launch the following new priority initiatives, starting in 2008:

- *European Wind Initiative*: focus on large turbines and large systems validation and demonstration (relevant to on and off-shore applications).
- *Solar Europe Initiative*: focus on large-scale demonstration for photovoltaics and concentrated solar power.
- *Bio-energy Europe Initiative*: focus on 'next generation' biofuels within the context of an overall bio-energy use strategy.
- *European CO₂ capture, transport and storage initiative*: focus on the whole system requirements, including efficiency, safety and public acceptance, to prove the viability of zero emission fossil fuel power plants at industrial scale.
- *European electricity grid initiative*: focus on the development of the smart electricity system, including storage, and on the creation of a European Centre to implement a research programme for the European transmission network.
- *Sustainable nuclear fission initiative*: focus on the development of Generation-IV technologies.

The European Industrial Initiatives will be implemented in different ways, depending on the nature and needs of the sector and the technologies. For technologies with a sufficient industrial base across Europe they may take the form of public-private partnerships, while for other technologies which are prioritised by a few countries, they may take the form of joint programming by coalitions of those interested Member States. Where appropriate, a combination of 'technology push' and 'market pull' instruments may be used. The European Technology Platforms will assist in the preparation phase.

Two on-going energy programmes serve as illustrative examples of SET-Plan initiatives: the European fusion research programme and its flagship 'ITER' and the proposed Joint Technology Initiative on 'Fuel Cells and Hydrogen'. Other related industrial initiatives are the Single European Sky air traffic management research programme (SESAR) that will improve

the energy efficiency of the aviation system and the proposed Joint Technology Initiative 'Clean Sky'⁸ that aims to enhance the energy efficiency of aviation engines.

5.2. Creation of a European Energy Research Alliance

Europe has strong National Research Institutes for Energy as well as excellent research teams working in universities and specialised centres. However, even if they pursue similar objectives, they define strategies and work plans individually. Traditional instruments (e.g. projects and networks) to coordinate their efforts are no longer sufficient. Greater cooperation at Community level will deliver a more effective use of resources.

The Commission proposes to create a *European Energy Research Alliance*. To launch the process the Commission will, in the first half of 2008, open a structured dialogue with the CEOs of the National Research Institutes and bodies of a similar character (e.g. higher education establishments) with significant programmes. The mandate will be to bring about a move from today's model of collaborating on projects towards a new paradigm of implementing programmes. The aims are to align these programmes with the SET-Plan priorities, network existing but disperse capacities and build durable partnerships with industry.

Examples of potential joint programmes that could be channelled through the Alliance include basic energy science, enabling and breakthrough technologies and advanced energy efficiency. The *European Institute of Technology* could provide an appropriate vehicle to realise this ambition, through a Knowledge and Innovation Community on energy and climate change.

5.3. Trans-European energy networks and systems of the future

To achieve a sustainable, interconnected European energy system will require massive energy infrastructure change as well as organisation innovation. It will happen over decades, transforming the energy industry and infrastructures, and represent one of the most important investments of the 21st century. Very diverse sectors will be affected, not only energy, environment and transport, but also information and communication technologies, agriculture, competition, trade and others. This will require a multidisciplinary approach to issues that are increasingly interconnected.

To plan and develop future infrastructures and policies, it is essential to have a good understanding of the full implications and logistics of new energy technology options.

The Commission proposes to initiate in 2008 an action on *European energy infrastructure networks and systems transition planning*. It will contribute to optimise and harmonise the development of low carbon integrated energy systems across the EU and its neighbouring countries. It will help the development of tools and models for European level foresight in areas such as smart, bi-directional electricity grids, CO₂ transport and storage and hydrogen distribution.

⁸ SESAR COM(2005)602 of 25.11.2005, Fuel Cell and Hydrogen Joint Technology Initiative COM(2007)571 9.10.2007, and 'Clean Sky' Joint Technology Initiative COM(2007)315 of 13.06.2007

6. RESOURCES

It is essential to address the mismatch between the sheer magnitude of the energy and climate change challenge and the current levels of research and innovation effort.

Implementation of the SET-Plan will help overcome the fragmentation of the European research and innovation base, leading to a better overall balance between cooperation and competition. Encouraging more focus and coordination between different funding schemes and sources will help to optimise investment, build capacity and ensure a continuity of funding for technologies in different phases of development.

Two challenges need to be addressed: *mobilising additional financial resources*, for research and related infrastructures, industrial-scale demonstration and market replication projects; and *education and training* to deliver the quantity and quality of human resources required to take full advantage of the technology opportunities that the European energy policy will create.

Increasing investment

Recent studies (e.g. the Stern Report, the Intergovernmental Panel on Climate Change reports and the International Energy Agency) confirm that increased energy research and innovation investment, to at least double the current levels, will deliver substantial benefits. Deployment incentives may also need to increase by two to five times.

The increased budgets of the Seventh Framework Programmes of the European Communities, as well as the Intelligent Energy-Europe Programme, are a step in the right direction. In the former, the average annual budget dedicated to energy research (EC and Euratom) will be €886m, as compared to the €574m of the previous programme. The Community's commitment to the ITER fusion programme has been instrumental in securing this budget increase. Further resources increases are similarly required to finance the proposed European Industrial Initiatives and the European Energy Research Alliance.

The European Investment Bank is also dedicating more resources to energy projects (5-7 b€ in the coming years). First results from the new Risk Sharing Finance Facility confirm that it is opening up wider financing opportunities for research and demonstration projects in the renewables and energy efficiency sectors.

Some Member States are already progressively increasing national energy research funding. Others should follow suit, with the aim of doubling the overall effort in the EU within three years. The Commission will monitor progress towards this objective within the context of the Lisbon process.

The Commission intends to present a *Communication on financing low carbon technologies* at the end of 2008. The Communication will address resource needs and sources, examining all potential avenues to leverage private investment, including private equity and venture capital, enhance coordination between funding sources and raise additional funds. In particular, it will examine the opportunity of creating a new European mechanism/fund for the industrial-scale demonstration and market replication of advanced low carbon technologies and will consider the costs and benefits of tax incentives for innovation.

In preparing this Communication, the Commission will draw on the expertise of governments, industry and the research, energy and financial communities.

Expanding the human resource base

To increase the quality and the number of engineers and researchers capable of facing the new energy innovation challenges, the Commission will use, in particular, the Marie Curie Actions of the Research Framework Programme, to boost the training of researchers in the energy field. The actions of the SET-Plan, such as the European Industrial Initiatives and the European Energy Research Alliance will further generate education and training opportunities, with the aim that they create an attractive working environment for the best researchers in Europe and world-wide.

Member States' own actions to increase the human resource base should be better coordinated to maximise synergies and increase mobility in a sector already under severe pressure due to the lack of young people entering the field. The co-funding of joint programmes should be prioritised.

7. INTERNATIONAL COOPERATION

International cooperation, for example on research or the setting of international standards, is vital to stimulate the global development, commercialisation, deployment and access to low carbon technologies.

With developed countries, where competition is a key element, it is crucial to ensure more cooperation on 'public good' research, such as on safety and public acceptance, as well as on longer-term frontier research.

For developing and emerging economies, the Community interest lies more in helping those countries develop and grow in a more sustainable manner, while building new market opportunities for EU industry and ensuring effective collaboration in accessing and developing resources. Options for further engaging and cooperating with such countries include: networking energy technology centres; setting up large-scale demonstration projects on technologies with the highest potential in those countries; increasing the use of innovative financing mechanisms, such as the Global Energy Efficiency and Renewable Energy Fund; reinforcing the use of the Kyoto Protocol mechanisms, notably the Clean Development Mechanism for investments in emissions reduction projects, if the post-2012 international agreement on further CO₂ reductions is reached.

The measures proposed in the SET-Plan (e.g. the Steering Group, European Industrial Initiatives and the European Energy Research Alliance) should bring about a reinforced international cooperation strategy. We also need to ensure that the EU increasingly speaks with one voice in international fora, where appropriate, to achieve a more coherent and stronger partnership effect.

8. TAKING THE WORK FORWARD

Today, the energy technology innovation process is based on national programmes and incentives, using national resources to meet national objectives and targets. This model fits a bygone era of cheap energy and no carbon constraints. To bring about the dramatic changes in the macroscopic energy landscape that will be necessary in the 21st Century, a new policy needs to be pursued.

The Commission therefore calls on the Council and Parliament to:

- Reaffirm that energy technology forms a fundamental pillar of Europe's Energy and Climate Change policies, and is vital to achieve our decarbonisation targets.
- Endorse a Community objective to jointly and strategically plan energy research and innovation efforts in alignment with EU energy policy goals. A governance structure will be set up in 2008.
- Confirm that a better and more effective implementation of current energy research and innovation efforts is fundamental and specifically:
 - Commit to set up a series of key European Industrial Initiatives, starting in 2008;
 - Endorse the need to strengthen European energy research capacities by better integrating EU energy research centres in a European Energy Research Alliance. A structured dialogue will commence in 2008 to achieve this goal;
 - Endorse the Commission's proposal to initiate an action to strategically plan the transition to low carbon energy networks and systems in Europe.
- Confirm that a better use of and overall increase in resources, both financial and human, are needed to accelerate the development and deployment of low-carbon technologies of the future.
- Welcome the Commission's intentions to prepare in 2008 a Communication on financing low carbon technologies.
- Agree on the need to reinforce international cooperation – to implement a coherent and differentiated strategy in relation to developed, developing and emerging economies.