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

20 20 by 2020
Europe's climate change opportunity

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Europe's climate change opportunity

(Text with EEA relevance)

2007 marked a turning point for the European Union's climate and energy policy. Europe showed itself ready to give global leadership: to tackle climate change, to face up to the challenge of secure, sustainable and competitive energy, and to make the European economy a model for sustainable development in the 21st century. Public opinion has shifted decisively towards the imperative of addressing climate change, to adapting Europe to the new realities of cutting greenhouse gas emissions and developing our renewable, sustainable energy resources. A political consensus has crystallised to put this issue at the heart of the European Union's political programme: a guiding theme for the Union, central to the Lisbon strategy for growth and jobs, and of primary importance in Europe's relations with partners worldwide. It won the support of both the European Parliament[1] and the European Council.

The agreement by the March 2007 European Council to set precise, legally binding targets was a symbol of Europe's determination. This decision was not taken lightly. There is much at stake, with the prosperity of the European economy reliant on finding the right way forward. There is compelling evidence now available that the costs of inaction would be crippling for the world economy: 5%-20% of global GDP, according to the Stern Report[2]. In parallel, recent price rises for oil and gas have brought home how competition for energy resources is becoming more intense every year; and how energy efficiency and renewable sources of energy can be profitable investments. This was the background to EU leaders' readiness to commit to a transformation of the European economy requiring a major political, social, and economic effort. At the same time, change offers a stepping stone to modernise the European economy, orientating it towards a future where technology and society will be attuned to new needs and where innovation will create new opportunities to feed growth and jobs.

Two key targets were set by the European Council:

- A reduction of at least 20% in greenhouse gases (GHG) by 2020 – rising to 30% if there is an international agreement committing other developed countries to "comparable emission reductions and economically more advanced developing countries to contributing adequately according to their responsibilities and respective capabilities".

- A 20% share of renewable energies in EU energy consumption by 2020.

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1 European Parliament resolution on climate change adopted on 14 February 2007 (P6_TA(2007)0038)

2 HM Treasury, Stern Review on the economics of climate change, 2006, http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/stern_review_report.cfm

The European Council agreed that the best way to reach such ambitious goals was for every Member State to know what was expected, and for the goals to be legally binding. This meant that the levers of government could be fully mobilised; and the private sector would have the long-term confidence required to justify the investment needed to transform Europe into a low-carbon, high energy efficiency economy.

The resolve of the European Council was a signal to our international partners that the EU was ready to turn words into deeds. This paid dividends at the United Nations Climate Change Conference in Bali in December 2007. The European Union was able to play a pivotal role in securing agreement on the roadmap towards a new comprehensive agreement on cutting emissions to be reached by 2009. This reinforced the EU's determination to press on with its commitment to fighting climate change, to show that it was ready to give force to its conviction that developed countries can and should commit to a 30% cut in emission levels by 2020. The EU should continue to take the lead in the negotiation of an ambitious international agreement.

The next step is to translate the European Union's political direction into action. The package of measures proposed by the European Commission represents a coherent and comprehensive path to preparing Europe for the transition towards a low-emission economy. It shows that the efforts required make sense. Measures are designed in a way so that they are mutually supportive. They offer the right way to maintain the momentum and deliver on Europe's ambitions for climate change, energy security and competitiveness.

Securing a prosperous Europe in times of change

The European economy faces a challenge in adapting to the demands of a low-emission economy with secure energy supplies. But the challenge can be met, and it also opens the door to new opportunities. There is a real potential to make climate-friendly policies a major driver for growth and jobs in Europe. Europe can show that necessary change can go hand in hand with the process of securing a competitive and prosperous economy fit for the 21st century. The process of change to a low carbon economy will also need to be accompanied by the appropriate involvement of social partners, in particular at sectoral level.

A global commitment remains indispensable to tackling climate change. But the case for Europe to act now is compelling. The longer Europe waits, the higher the cost of adaptation. The earlier Europe moves, the greater the opportunity to use its skills and technology to boost innovation and growth through exploiting first mover advantage. The trend of global opinion is clear, and the EU can take the lead in pointing the way to an international climate agreement for the post 2012 period.

Reducing greenhouse gases and increasing renewable energy according to the targets agreed by the Heads of State and Government will make the EU much less dependent on imports of oil and gas. This reduces the exposure of the EU economy to rising and volatile energy prices, inflation, geopolitical risks and risks related to inadequate supply chains that are not keeping up with global demand growth.

The opportunities offered by the transition are wide-ranging:

- Oil and gas imports are expected to go down by some € 50 bn in 2020[3], improving energy security and benefitting citizens and businesses across the EU: if current prices became standard for a barrel of oil, the saving from cutting imports would rise.

- Renewable energy technologies already account for a turnover of € 20 bn and have created 300 000 jobs. A 20% share for renewables is estimated to mean almost a million jobs in this industry by 2020 – more if Europe exploits its full potential to be a world leader in this field. In addition, the renewable energy sector is labour intensive and reliant on many small and medium sized enterprises, spreading jobs and development to every corner of Europe: the same is true of energy efficiency in buildings and products.

- By encouraging all companies to use low-carbon technologies, the climate change challenge can be transformed into an opportunity for European industry. In total, the eco-industry already accounts for some 3.4 million jobs in Europe: it offers particular growth potential. Green technologies are not the monopoly of any one part of Europe. They are a growing part of an industry that now accounts for over € 227 billion in annual turnover, offering real advantages to the first entrants into this market.

This underlying rationale lies behind the political consensus in favour of change, and the agreement of the European Council to act.

The architecture of the proposals has been driven by two factors. First, the proposals are designed in such a way that the targets are reached in the most cost-effective way possible. Second, the effort required of particular Member States and particular industries remains balanced and proportionate, and takes their own circumstances into account. Fairness and solidarity have been at the heart of the Commission's thinking in developing the proposals.

The key principles

The package of measures responds to an invitation from the European Council for the European Commission to bring forward specific proposals. At the same time, EU leaders developed a political understanding about the principles under which the proposals would be delivered.

The architecture developed by the Commission has been designed to respect the principles set out by the European Council. In particular, the translation of overall EU-wide goals into specific targets for each Member State has been governed by the need to secure a political consensus to drive change and carry public opinion.

The proposals rest on five key principles:

- The targets must be met: to assure Europeans of the reality of change, to convince investors to invest, and to show the EU's seriousness of intent to partners worldwide. The proposals must therefore be effective and strong enough to be credible, with mechanisms for monitoring and compliance in place.

[3] This was modelled on the basis of an oil price of US$ 61 a barrel.

- The effort required from different Member States must be fair. In particular, some Member States are more able than others to finance the necessary investments. The proposals must be flexible enough to take account of Member States' different starting points and different circumstances.

- The costs must be minimised: with a design tailor-made to limit the price tag of adaptation for the EU economy. The costs of change and the consequences for the Union's global competitiveness, employment and social cohesion need to be kept at the forefront in designing the right structure.

- The EU must drive on beyond 2020 to make even deeper cuts in greenhouse gases to meet the target of halving global emissions by 2050. That means stimulating technological development and ensuring that the system can take advantage when new technology comes on stream, using the tools available to encourage innovation and create a competitive edge in clean energy and industrial technologies.

- The EU must do everything possible to promote a comprehensive international agreement to cut greenhouse emissions. The proposals are conceived to show that the Union is ready to take further action as part of an international agreement, stepping up from the 20% minimum target for greenhouse gas reductions to a more ambitious 30% reduction.

The tools to deliver the targets

Updating the Emissions Trading System

The European Union Emissions Trading System has proved a pioneering instrument to find a market-based solution to incentivise cuts in greenhouse gas emissions. It requires companies to surrender allowances equivalent to their level of CO_2 emissions. This "cap and trade" system in its present design has meant that allowances are allocated by national governments to companies, subject to approval by the Commission of the national plans. A market has developed in carbon allowances, because companies can sell allowances if they cut their own emissions, or buy them if they have insufficient allowances to cover their emissions. So if companies invest in reducing emissions, they can earn an income stream from the sale of allowances – at the same time stimulating innovation and pushing change where it is most cost-effective. This system covers some 10 000 industrial plants across the EU – including power plants, oil refineries, and steel mills – accounting for almost half the EU's CO_2 emissions.

However, a review of the ETS has shown that it needs to be strengthened and updated if it is to meet its new objectives. The incentive effect of the current ETS has been cushioned by the generous number of allowances handed out in the first phase (2005-2007). The structure of the ETS, with national allocation plans, has raised the risk of distortions in terms of competition and the internal market. The scope of the ETS, in terms of the sectors of the economy covered and the gases included, has also limited its ability to drive emission cuts.

An enhanced Emissions Trading Scheme would build on the positive experience so far and would be designed to deliver a new drive towards a climate-friendly economy:

- The scope of the ETS would be extended with the inclusion of greenhouse gases other than CO_2[4], and all major industrial emitters. To lessen the administrative burden, industrial plants emitting less than 10 000 tonnes of CO_2 would not have to participate in the ETS, provided equivalent measures are in place to ensure their adequate contribution to reduction efforts.

- A harmonised ETS covering the whole Union will be best suited to the internal market, with common rules to ensure a level playing field. National allocation plans would be replaced by auctioning or free allocation through single EU-wide rules. The allocations put on the market would be reduced year-on-year to allow for emissions covered by the ETS to be reduced by 21% from 2005 levels by 2020.

  The power sector – representing a large part of emissions – would be subject to full auctioning from the start of the new regime in 2013. Most other industrial sectors, as well as aviation, would step up to full auctioning gradually, reaching full auctioning by 2020.

  Auctioning would be handled by Member States, and the revenues would accrue to Member States' treasuries. However, auctions would be open: any EU operator could buy allowances in any Member State. The auctioning process will generate significant revenues for Member States, which will help towards the process of adjustment to a low carbon economy, supporting R&D and innovation in areas like renewables and carbon capture and storage, helping developing countries, and helping the less well-off to invest in energy efficiency. Member States should commit to use at least 20% of their auctioning income for this purpose.

- Under the Kyoto Protocol, industrialised countries can achieve part of their emission reduction commitments by investing in emission-saving projects overseas – notably in developing countries, through the Clean Development Mechanism (CDM)[5]. This has the advantage of meeting emission reduction obligations at lower cost, as well as promoting the transfer of low-carbon technologies to developing countries. CDMs have proved their worth in cutting emissions, and offer access to more cost-effective options than sometimes available within Europe. However, there is a risk that too generous a use of CDMs can dilute the effectiveness of the ETS by increasing the supply of credits and thereby cutting demand for allowances, and reducing the incentive for governments and companies to promote emission reductions at home. This can also limit the ETS' capacity to act as the key driver to realise the target for renewable energy.

  Under the new ETS, companies will still have access to CDMs, but the use of credits generated by such mechanisms will be limited to the levels used in the current ETS period. This would leave room for access to this mechanism to be increased once an international agreement is signed – central to allowing the EU to step up swiftly to the more challenging 30% GHG reduction in the event of an international agreement. Freeing up access to this mechanism would also be an incentive for third countries to sign up to an international

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4 N_2O from acid production and PFC emissions from the aluminium sector.

5 Joint Implementation also exists to cover projects in other industrialised countries with Kyoto targets.

agreement, in the knowledge that European investment and technology could flow as a result.

Greenhouse gas reductions beyond the ETS

Since the revised ETS will only cover less than half of the GHG emissions, an EU framework is needed for national commitments to cover the remaining emissions – covering areas like buildings, transport, agriculture, waste and industrial plants falling under the threshold for inclusion in the ETS. The target for these sectors would be a 10% reduction in emissions from 2005 levels, with specific targets for each Member State. Some of this would be driven by EU measures – like tougher standards on CO_2 emissions from cars and fuel, and EU-wide rules to promote energy efficiency – but otherwise Member States would be free to determine where to concentrate their efforts, and what measures to bring into play to leverage change. Member States would also have access to CDM credits covering almost one third of their reduction effort.

A new era for renewable energy

The March 2007 European Council put particular emphasis on renewable energy. In choosing to fix a specific target for the EU as a whole, and for this to be backed up with precise national targets, EU leaders recognised the special contribution that renewable energy can make to the twin goals of reducing emissions and improving energy security. Today, the share of renewable energy in the EU's final energy consumption is 8.5%. An increase of 11.5% is needed on average to meet the target of 20% in 2020. This will require a major investment effort across the Union, but the relative costs will fall as other energy producers face the costs of ETS allowances and rising prices for oil and gas.

Member States enjoy different possibilities to deploy renewable energy, and the efforts required to reach the 20% share of renewable energy in the EU's overall energy consumption need to differ between the Member States. The European Council defined a number of considerations that should be taken into account when setting national targets. The targets should be fair, and take account of different national starting points and potentials, including the existing level of renewable energies and the energy mix, notably low-carbon technologies.

The Commission's proposal is based on a methodology according to which half of the additional effort is shared equally between Member States. The other half is modulated according to GDP per capita. In addition, the targets are modified to take into account a proportion of the efforts already made by those Member States that have achieved a certain increase in their share of renewable energy in recent years. This allocation methodology, combined with a new flexibility mechanism, means that the European Council mandate has been respected to the full.

The options for developing renewable energy vary from one Member State to another. Some have potential in wind power, others in solar power or in biomass. Member States are best placed to choose where to put the emphasis. But with lead times for bringing renewable energy on stream so long and investors needing certainty, it is important for Member States to have a clear vision of where they intend to act. Member States will each put forward a national action plan, setting out how they intend to meet their targets and allowing for progress to be monitored effectively. A specific effort is needed to achieve greenhouse gas emissions reductions and improved security of energy supply in the transport sector, which is

why the European Council chose to fix a specific minimum target for sustainable biofuels of 10% of overall petrol and diesel consumption.

The cost of exploiting renewable energy potential also varies. Some investments can come swiftly on stream and be commercially viable, but as these options are used up, investment has to turn to more costly options. At the same time, as production volumes increase, production costs will fall. That is why Member States need a degree of flexibility. As long as the EU's overall target is met, Member States should be allowed to make their contribution by supporting Europe's overall renewables effort, and not necessarily inside their own borders: if Member States can reach their targets by helping develop renewable energy in another Member State, they can reduce their own compliance costs and at the same time provide the other Member State with a useful extra income stream. From a European, rather than a national perspective, this would shift investment to where renewables can be produced most efficiently in the EU, and could cut between € 2 to € 8 billion from the price tag for meeting the target.

Such investment in another Member State does not require a physical transfer of the resources, which face geographical and technical obstacles. It can take place with transferable guarantees of origin (proof that renewable energy has been produced). The proposal will create these tools for use alongside existing national renewable energy support schemes. This will allow the overall target to be met as cost-efficiently as possible.

Any expansion of renewable energy also requires that the traditional regulatory framework for conventional energy is adapted: unnecessary regulatory, administrative and planning barriers to the promotion and development of renewable energy need to be abolished, and the proposal seeks to guarantee the right environment for renewables to flourish.

Finally, the European Council also endorsed a separate minimum target for the share of sustainable biofuels for EU transport. Whilst biofuels are the only viable alternative transport fuel for the foreseeable future, their growth requires criteria to be set for the environmental sustainability of biofuels. The proposed scheme includes minimum criteria for the greenhouse gas performance of biofuels, which must be respected for those biofuels that are used to meet the 10% target. Similarly, it sets binding criteria for biodiversity and bans certain types of land use changes. When adopted, it will be the most comprehensive system of its kind introduced anywhere in the world and will apply equally to domestically produced and imported biofuels. The rules are critical in order to ensure that the environmental benefits of using biofuels outweigh any possible environmental disadvantages. At the same time, the Commission is committed to promoting in all its policies the rapid development of second generation biofuels. It will closely monitor market developments and their effects on food, feed, energy and other industrial uses of biomass, and take appropriate action if needed.

The role of energy efficiency

The EU goal of saving 20% of energy consumption by 2020 through energy efficiency is a crucial part of the puzzle. It would save the EU some € 100 billion and cut emissions by almost 800 million tonnes a year. It is one of the key ways in which CO_2 emission savings can be realised.

Transport, buildings and more efficient power generation, transmission and distribution all offer opportunities which need to be stimulated through a mixture of legislation and information – as well as being driven by the stimulus of avoiding the impact of rising energy

costs for consumers. Product standards can be used to bring more efficiency to a wide range of goods, from televisions to cars and heaters to streetlights. Better labelling already means that 75% of labelled products bought are in the "A" class. All these savings means more scope for households to face up to rising energy prices, and more investment in technology and jobs. But driving on to the 20% target for energy efficiency will require a major commitment at all levels from public authorities, economic operators and citizens alike.

Looking beyond 2020: galvanising the potential for deeper cuts in emissions

Over the past ten years, technology has developed swiftly. Renewable energy technologies are making wind and solar energy more commercially viable than ever before. Energy efficiency is being mainstreamed into products from the humble lightbulb to the most sophisticated production machinery. But this process must be accelerated if Europe's goals for climate and energy are to be met and if the commercial potential of these technologies is to be exploited to the full. The EU Strategic Energy Technology Plan[6] will use the EU's levers to help maintain Europe's leadership in sustainable technologies. Climate change and energy have been earmarked as likely first areas on which the European Institute of Technology could focus its attention.

Of particular importance is *carbon capture and storage* (CCS). Fossil fuels will remain the primary source of energy worldwide for decades to come. Stocks of coal will be needed to provide energy in Europe, and to feed the huge rise in energy demand already under way in many developing countries. But the target of halving 1990 global GHG emissions by 2050 will never be met unless the energy potential of coal can be exploited without ballooning emissions. That is why the European Council backed early action to make CCS the technology of choice for new power plants, including the setting up of up to 12 demonstration plants by 2015.

European legislation is needed to provide the right framework for CCS to work in the internal market and factor the benefits of CCS for the ETS. This is an important part of the package: investors in CCS can be clear that they save the costs of ETS allowances faced by their competitors, and that the right safety measures are in place to justify long-term investment. A European Industrial Initiative will be set up to bring together the key actors and provide a coherent drive for the new technology.

However, it remains the case that significant investment will be essential if demonstration plants are to be financed and commercial deployment is to get under way - in the order of tens of billions of euros. Since there is no possibility of significant funding from the EU budget, the only possible sources for this investment are public-private partnerships fed predominantly by national budgets and private sector investment. For governments, the income stream provided by the auctioning of ETS allowances is an obvious source of revenue for this purpose. For the private sector, the inevitability of moving to CCS offers a real commercial benefit to power generators prepared to move early into this market. But the later this process begins, the more policy-makers will be obliged to look at the option of compulsory application of CCS technology as the only way forward.

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[6] A European Strategic Energy Technology Plan: Towards a low carbon future - COM(2007) 723, 22.11.2007.

Bringing about change

As the European Commission has explored various options and modelled different scenarios, a guiding principle has been the need to develop an approach which limits the costs faced by the EU economy in the process of change – to ensure that it fits squarely inside the approach of the Lisbon strategy for growth and jobs. It would be futile to pretend that change on the scale envisaged requires no economic effort. But the Commission considers that with the right design, the costs can be kept to under 0.5% of GDP a year by 2020. This leaves far more scope for prosperity and growth than the price of failing to act.

To meet the EU's goals at minimum cost, the Commission's proposals build on the experience of the Emissions Trading System and leave the market to drive as much as possible. It also retains as much flexibility for national decision as possible within the constraints of specific national targets.

- The future ETS will ensure a sufficiently high price that companies have a strong commercial interest in avoiding the cost of ETS allowances.

- Auctioning of ETS allowances will favour more efficient installations.

- For cuts in emissions outside the ETS, Member States will be free to pursue different strategies to secure their reductions, according to the different circumstances in the Member State concerned.

- Member States should have the freedom to determine their own energy mix[7] and to promote renewable energy in different ways. The introduction of a system to allow Member States to top up their renewable energy targets through working with other Member States leaves a national choice about how far to go in pushing domestic renewables production.

- State aid can legitimately be used to promote the policy goal of cutting emissions and increasing renewable energy. But the use of such state aid needs to strike the right balance between generous support for well-targeted aid for environmental protection, and preserving competition. Effective competition is essential to making market-based instruments work well. New state aid guidelines will provide a framework setting out how Member States can use aid to promote a higher level of environmental protection, including in the field of energy. State aid can not only help to offset a failure of the market to reflect costs to the environment, it can also encourage undertakings to adopt more environmentally-friendly processes or to invest in greener technologies. The newguidelines recognise in particular that state aid may be justified where higher production costs result in obstacles to market entry for renewable energies. They allow full support for renewable energies to be commercially viable. They also open up the possibility to consider state aid for carbon capture and storage, and provide legal certainty for emission trading systems.

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[7] The European Council of March 2007 recalled that the Energy Policy for Europe will "fully respect Member States' choice of energy mix" and confirmed that "it is for each and every Member State to decide whether ot not to rely on nuclear energy….this has to be done while further improving nuclear safety and the management of radioactive waste".

The particular needs of energy-intensive industries

Energy-intensive industries are an important part of the EU's economic fabric. They would face a particular challenge during the transition to a climate-friendly economy. As well as rising costs for electricity, as major sources of emissions they would under normal circumstances take part in the auctions for ETS allowances: an additional cost not faced by their competitors in countries without low-carbon measures. This not only has implications for competitiveness and jobs, it also carries the risk that production and the consequent pollution just shifts to countries with no low-carbon policies. Concerns have been expressed by a number of energy intensive sectors such as ferrous and non-ferrous metal industries, pulp and paper, and mineral-based industries. The impact of increased electricity prices on certain sectors has also been raised and will need to be addressed, once duly substantiated.

A comprehensive international agreement would address this. But in the absence of such an agreement, or of significant unilateral action by competitors in energy-intensive sectors, the EU must take action to ensure a level playing field.

The proposals therefore put in place provisions to allow action to be taken. The need for action to be taken would be established by meeting criteria to show that the extra costs could not be passed on without a significant loss of market share to less carbon-efficient competitors outside the EU. Sectors meeting these criteria would be given some or all of their ETS allowances free of charge. This would be followed up by a review looking at the impact of international negotiations, which could lead to proposals such as adjusting the proportion of free allowances or requiring importers to enter ETS auctions to purchase allowances alongside European competitors, as long as such a system was compatible with WTO commitments.

The capacity to invest

The European Council recognised that the ambition of the proposals will make real demands on all Member States. The Commission has therefore carefully assessed the economic impact of the proposals against the capacity of each Member State to make the investment required. With the overall cost to the European economy estimated at just under 0.5% of GDP by 2020, the Commission believes that no Member State should be asked to make an investment which diverges too far from this broad average. With this in mind, the specific requirements asked of each Member State have been modulated to allow for a realistic level of investment from lower-income Member States. This modulation impacts on three different aspects of the proposals:

- The national targets set for reductions in greenhouse gases outside the framework of the ETS.

- The national targets set for the share of EU energy consumption to be taken by renewables.

- Auctioning rights under the ETS, with the distribution of auctioning rights spread to increase the share for lower-income Member States.

This approach will enable all Member States to face realistic and viable targets. It will ask all Member States to make a real effort. But it opens the door to delivering on Europe's ambition to transform itself into a truly climate-friendly economy.

Conclusion

The Europe of 2050 will look very different. Nowhere will this be more obvious than in the way we supply our energy needs, and the respect we show to the world around us. This is a vision which inspires many Europeans today. People recognise that there are alternatives, ways of running our daily lives which mean that Europeans can continue on the path of growth and jobs while leading global efforts to tackle climate change. There are also new opportunities, new technologies which Europe is well placed to exploit and new business openings for manufacturers and suppliers.

The European Commission's proposals put Europe on the road to that future. They seek to provide the framework and the stimulus to realise the political ambitions set out by the European Union in Spring 2007, and reinforced at the Bali Conference. They are a central plank of Europe's efforts to modernise its economy for the challenges of the 21st century.