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PARIS, FRANCE

AT THE SECOND SESSION OF THE CONFERENCE OF THE PARTIES

TO THE U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE

(COP-2)

8TH JULY 1996

GENEVA, SWITZERLAND

I appear before you today on behalf of the International Energy Agency, a partner organisation in the Framework Convention process. I do so to address the energy dimension of the climate change issue. That dimension is large. Energy is a major part of the climate change problem. It must be a major part of the solution. The choices made here will have profound implications for energy policy and energy markets. That is why the International Energy Agency is deeply involved.

IEA Members share a commitment to sustainable economic development, global energy security and sound environmental protection. Energy markets are increasingly inter-dependent on a global scale. Global co-operation on energy matters increasingly involves co-operation on global environmental issues, especially greenhouse gas emissions and climate change.

The Berlin Mandate Momentum

The energy and industry ministers of the International Energy Agency have met twice since the Berlin Mandate was adopted, calling on Annex I Parties to the Framework Convention to elaborate policies and measures and to set quantified emission limitation and reduction objectives within specified timeframes such as 2005, 2010 and 2020, with a view to adopting a protocol or other legal instrument at COP-3 in November 1997. The challenge of fulfilling that Mandate has been a principal focus of their discussions; indeed, on one occasion, the sole focus. Their concern has been to identify effective action.

In that spirit, the IEA has already contributed several inputs to the COP process. These include the "Technology Scoping Study" which summarised the principal avenues available for technology responses to climate change, and a survey of "Voluntary Actions to Mitigate Energy-Related Greenhouse Gas Emissions", which provided details of over 250 programmes in this area.

It should be no surprise to this audience - but, I trust, a cause for satisfaction - that at their meeting just three weeks ago devoted exclusively to energy and climate issues in the context of the Berlin Mandate, IEA ministers reaffirmed their political commitment to the goals of this Convention and to the aim expressed in the Berlin Mandate. All IEA countries accept the climate change problem as a major determinant of energy policy, and our ministers intend to be fully involved in responding to it.

We all know, when we face up to the realities, that Annex I countries will likely fall short collectively of the Rio aim of stabilising greenhouse gas emissions at 1990 levels by the year 2000. IEA ministers are looking beyond that, so that we stand a better chance of getting the next round of commitments right. That is to make positive use of the experience we have had since Rio.

There is more realism now, both about the threat and about the opportunities for action. There is more awareness of the practical potential for action and more realism about the costs. What can be achieved by energy efficiency and other "no regrets" policies in the near-term is better understood. This last point appears, to us in the IEA, to be crucial. There was wisdom in the Berlin decision to analyse and assess policies and measures as a precursor to setting the framework for future objectives. Commitments to concrete actions, within the right timescale, are the practical way ahead. Getting the timescale, the policies and the measures right at the beginning in fact widens the scope for effective action.

Key Underlying Factors in the Energy Sector

There are key underlying factors in the energy sector which govern the scope for action on greenhouse gas emissions. Understanding them is the key to selecting programmes which are politically realistic and will achieve results, not just express good intentions.

First, substantial differences exist among Annex I countries in those features of the energy scene which determine the level and pattern of energy-related greenhouse gas emissions: the structure and pattern of energy demand; the fuel mix; the technology mix; the age and turnover rate of capital stock; import and export balances.

Second, the available response options are equally diverse. The prime determinant is the existing infrastructure for delivering services, such as transportation and mobility, or various electricity end-uses.

Third, in all IEA countries, sharp reductions in energy use have been experienced, but only in periods of large increases in end-use prices, accompanied by economic disruption. To impose deliberately such abrupt price changes is not a serious option when electors want to take prudent precautionary steps, but not at drastic cost to their lifestyle.

Energy demand in all countries is characterized by a high level of rigidity in the short term. Cost-effective energy efficiency options are available; but their diffusion is constrained by the lifetime of existing physical capital stocks, the rate of capital stock turnover and the pace of technological change. Account must also be taken of the weight individual decision makers attach to future uncertainties.

The first requirement for well-founded new commitments is, accordingly, a deep understanding of both the opportunities and the rigidities that exist in different countries and in different sectors. Without such sectoral disaggregation, assumed response options may well prove not to be robust. Such a sector-level understanding is essential to arrive at viable proposals for response options or emissions objectives. Recognising these realities is a first major step forward.

Final energy use is, in fact, largely driven by current infrastructures (buildings, road networks, energy grids). Those infrastructures embody the technology choices and the patterns of energy use of an immense web of economic agents. For the most part, such choices did not systematically take into account their energy implications, still less their environmental implications. But, they will shape our way of life and patterns of energy use for decades.

Long lead times are involved: three or more years to design and build a new car and twelve years on average for its lifetime; six to ten years to build a new coal-fired power plant and forty to fifty years on average for its lifetime. The lead times for introducing new technologies, like many renewables or new industrial processes, can be even longer.

Facing up to such inertia is **not** an argument for delaying action. On the contrary, it underlines the need to ensure that today's choices are informed by full awareness of the implications for energy use and resulting emissions. The long timescale for infrastructural change needs to be matched by long-scale commitments to change and long-scale policy instruments (including energy technology R&D).

Messages from the IEA's Latest *World Energy Outlook*

One of the roles the IEA has taken upon itself is to bring out, objectively, the realities of the energy sector. Our *World Energy Outlook* projections reflect these structural rigidities by illustrating how energy use will grow in the absence of effective policies to alter established patterns. CO₂ emissions from energy in OECD countries could rise between 20 and 30 percent above 1990 levels in 2010: those from countries outside the Annex I group could rise between 90 and 150 percent.

In fact, whatever assumptions we made about economic growth, energy prices and energy efficiency, emissions projections in our *Outlook* rose substantially.

This is a sombre message. In the simplest terms, it confirms that the world's economy is highly geared to the use of fossil fuels. The emissions outlook is bleakest when economic growth is most robust. However, the work underlying the IEA model does suggest that there is room for policies that could result in faster than expected efficiency improvements, which would reduce emissions.

Let us consider the difference between the two principal cases in our *Outlook*. In one, no new policies are imposed and such a high demand for fossil fuels results that production capacity is constrained and prices rise. In the "Energy Savings" case, policies adequate to bring about all the "economic" potential for energy efficiency gains are introduced. This represents a policy of strong intervention, albeit one notionally consistent with a "no-regrets" or, at least, "minimum regrets". Substantial reductions in energy use and related emissions are achieved; but CO₂ emissions nonetheless continue to grow.

In any case, these projections conceal real problems about what constitutes a "no regrets" action. Everyone knows that what is technically possible is not the same as what is economically reasonable. There is more reluctance to face up to the distinction between what is economic and what is commercially or politically possible. The theoretical economic potential does not usually reflect the real climate of commercial and personal decision-making, including risk assessment -- and voting behaviour. It overstates the potential. Such theoretical potential was not fully tapped even at the time of the oil shocks in the 1970s.

Moreover, even theoretical "no regrets" policies, when viewed against the projections of the IEA's *World Energy Outlook*, will not be adequate to stabilise, much less reduce, energy-related CO₂ emissions in the OECD by 2010. If more is to be done, costs will clearly have to be incurred. We need to face up to that. We also need to have realistic expectations which do not disregard the inherent rigidities in the energy system. And, realistic opportunities properly defined will vary widely from country to country, even within the OECD.

Opportunities for Action

So much for the cold bath of realism. Now let me turn to the positive way forward -- but on that firm foundation. Decoupling economic growth from such intensive fossil fuel dependency is the challenge. Technology and policy options do exist to reduce fossil fuel dependency and improve the efficiency of fossil energy use in **all** sectors.

Energy-related CO₂ emissions can be reduced by several means: decarbonising the fuel mix; lowering energy intensity by improving energy efficiency; and emissions capture and disposal. All should be considered in the mix of measures. I discount the option of deliberately slowing economic growth.

The question is too often put as "action now?" or "action later?", and I suppose that a debate along those lines may be played out further here at COP-2. But, the IEA believes those are the wrong questions. The proper question is in fact "*which* actions now", recognising that the effects will appear over different timescales.

Most IEA countries have embarked on "no regrets" or "minimum regrets" options to address energy-related greenhouse gas emissions. Properly defined, such actions cannot be wrong. By definition, they do not carry substantial costs. Yet they convey the willingness to deal urgently with the potential threat of climate change.

Beyond that, the choices are tougher. The policy approaches available include significant energy price increases; efforts to accelerate penetration of renewables and other non-fossil, or less carbon-intensive, fuels; and substantial programmes to overcome barriers to new and improved technologies and assure rapid penetration of more efficient and cleaner processes. Such actions clearly involve economic costs. In some cases, they would engender fervent political opposition. Think only of the controversy surrounding new nuclear power stations, even though nuclear power accounted for the greater part of the lowering of carbon intensity of the energy economics of the OECD countries over the last 25 years.

In the IEA, we believe that we cannot afford to wait to act; but we also believe that we cannot afford to squander scarce economic resources nor disregard political realities.

I am not here today to offer an agreed solution or comprehensive proposal. There is no such agreement among our Members, much less between all the Parties represented here today, on the measures or the type of objective which should be adopted. That is, in any case, a decision for COP-3, not COP-2.

COP-2 nonetheless represents a crossroads, where the structure of the negotiations towards a legally binding protocol or other instrument under this Convention is to be shaped. If that structure is properly designed, there is a real prospect for effective action to limit greenhouse gases, by decoupling emissions growth from economic growth. In the energy sector, that means tackling the hard issues, not shying away from the rigidities which exist in energy systems and the need to effect structural changes over time, in concert with capital stock turnover and investments in new infrastructure.

Specific priorities for accelerated work have already emerged. These include enhanced technology research and development preferably on a collaborative basis; pursuing the possibilities for activities implemented jointly (AIJ), which can benefit all countries; and voluntary approaches, involving the willing commitment of the private sector to reduce emissions in a cost-effective manner. Involving industry in the design and implementation of the response options under this Convention is critical to our long-run success.

Working Together with All Market Participants

OECD countries know they must deliver first on their own commitments. But they also seek to reach out to improve co-operation with non-OECD countries by making available the fruits of our own experience. Despite the disparities which exist among historical, current and projected emissions patterns in the various regions, all of us know that addressing the emissions in one region alone simply cannot overcome the global emissions problem.

Effective co-operation between OECD and non-OECD countries means two things: freely functioning markets and technology effectively deployed.

Greenhouse gas emission reduction measures need free and open markets in which to operate. There is no room for new restrictions to trade erected in the name of the environment. The role for governments includes, among other things, removing barriers and distortions, reviewing subsidies and incentives, and promoting full cost pricing.

But, governments also need to be constantly alert to those who, in today's jargon, are known as the stakeholders. We must not forget, as we talk and negotiate in this diplomatic forum, that actual investment decisions and consumption decisions, which are the source both of this problem and its ultimate solution, are made by millions of individual actors in industry and in households. Industry and consumers are partners in this process. Their consent to government intervention and their decisions as economic actors will determine the outcome. We should observe closely the results of imaginative initiatives such as the green pricing of electricity, under which consumers can register their own valuation of the costs and benefits of acting to limit climate change.

The Role of Technology

The wider adoption of existing climate-friendly technologies, and the development and deployment of new and improved technologies, will be essential elements in a market-based response to climate change concerns. Technological progress can help break the links connecting economic and population growth to increased energy consumption and greenhouse gas emissions. But, expanded and intensified efforts are needed to speed up the otherwise lengthy technological development and deployment process. This is where the IEA/OECD Climate Technology Initiative (CTI) will play a significant role.

An *Inventory of CTI Activities* (available at COP-2) illustrates the types of action being taken in the technology field by OECD/IEA Member countries. It identifies a wide range of national and bilateral activities already underway, or being planned, to support or strengthen technological progress through government and private sector efforts. Multilateral activities being undertaken by the OECD, the IEA and the European Community are also summarised. Task forces under the lead of France, Germany, Japan and the United States are developing new activities under the CTI. The CTI is open to participation by government agencies, academia and industry from all interested countries. Similarly, relevant *IEA Implementing Agreements* are open to participation by non-OECD countries.

I wish to mention one, in particular, the GREENTIE project, set up by IEA and OECD Member countries, which will facilitate access to information about climate friendly technologies and practices. GREENTIE will be demonstrating its capabilities here at COP-2.

Conclusions: Towards the Right Approach

The IEA will remain active as a contributor to the implementation of this Convention from the energy perspective. We will promote the free exchange of information and expertise; we will help inform the debate through our conduct of analysis and data collection, and our sponsorship of fora for discussion; we will promote technology collaboration; and, we will assist with communicating, reviewing and evaluating energy aspects of information in the FCCC context.

The IEA Secretariat will complete and transmit to our Member governments, and to the COP and its subsidiary bodies, the full range of our sectoral, policy and technology-related analyses, in time for their consideration in the run-up to COP-3. This will include the OECD/IEA analyses of possible common actions being studied under the Annex I Expert Group, which are to be reported on separately at this session.

The basic message regarding the energy dimension of this problem has not changed since Rio and Berlin, but the understanding is much deeper. Energy and environment goals have to be reconciled. IEA Ministers accept that there is an anthropogenic effect on the climate, though the costs and benefits associated with those impacts, and the options to respond to them, have yet to be adequately quantified. Energy Ministers have asked us to work with you to help develop cost-effective solutions that are viable in the real world.

My appeal is that any framework for negotiating a protocol or other legal instrument be flexible and, above all, that it should allow sufficient time for policies to work with structural change, not against it. That way lies a realistic, credible and effective path to the success we all seek.

Seen for me