OECD's Recent Work on CLIMATE CHANGE

December 2009

List of Contents

Abbreviations and Acronyms

AIXG	Annex I Expert Group
CDM	Clean Development Mechanism
GHG	Greenhouse Gas
ICT	Information and Communication Technology
IEA	International Energy Agency
ITF	International Transport Forum
MRV	Measurement, Reporting, and Verification
NAMAs	Nationally Appropriate Mitigation Actions
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
REDD	Reducing Emissions from Deforestation and Forest Degradation in Developing Countries
UNFCCC	United Nations Framework Convention on Climate Change

OECD's Work on Climate Change

Global climate change threatens to disrupt the well-being of society, deter economic development and alter the natural environment, making it a key policy concern of the 21st century. Governments around the world have reached consensus on the need to achieve large cuts in greenhouse gas (GHG) emissions over the coming decades and cooperate to adapt to the impacts of climate change. They are working towards an international agreement on actions to achieve these goals at COP15 under the United Nations Framework Convention on Climate Change (UNFCCC) in Copenhagen. A central challenge in responding to climate change is the integration of climate policy objectives into economic development strategies and sectoral policies.

The Organisation for Economic Co-operation and Development (OECD) is a multi-disciplinary inter-governmental organisation, tracing its roots back to the post-World War II Marshall Plan. Today, it comprises 30 member countries and the European Commission committed to democratic government and the market economy with the major emerging economies increasingly engaged in the work. The OECD provides a unique forum and the analytical capacity to assist governments to compare and exchange policy experiences, and to identify and promote good practices through policy decisions and recommendations.

The OECD has been working on climate change economics and policy since the late 1980s. The OECD works closely with governments to assist them to identify and implement least-cost policies to reduce GHG emissions in order to limit climate change, as well as to integrate adaptation to climate change into all relevant policy areas. In the wake of the economic crisis, the OECD is also looking at how measures that governments are taking to spur economic growth can best be formulated so that they support – or at least do not work against the objectives of moving towards a green, low-carbon economy. Given the global nature of the climate change challenge, and its widespread economic, social and environmental impacts, the OECD is in a unique position to assist countries put international climate policy on a solid economic footing consistent with frameworks for development. Work on climate change is underway across the OECD, engaging government representatives from a range of Ministries. This brochure provides an overview of the recent OECD work on climate change.

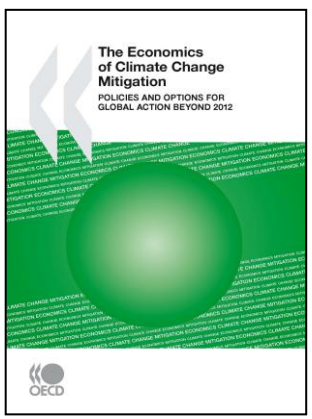
1 Economic and Policy Analysis on Climate Change

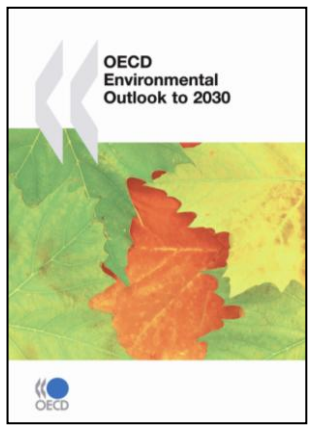
1.1 Climate Change Mitigation

Economic and Environmental Modelling

Economic models and quantitative assessments of climate change mitigation scenarios, and how these impact on the economy, play a key role in informing policy-makers of costs, benefits and potential tradeoffs.

OECD's modelling work assesses how policies can be applied to cost-effectively reduce GHG emissions in a post-2012 framework. The analysis examines the costs of different mitigation scenarios globally, as well as the distribution of these costs across regions, countries and sectors. It focuses on: the pros and cons of different policy instruments (*e.g.* market instruments, regulatory, and research and development polices) and how they can be combined in environmentally- and cost-effective policy mixes; potential carbon leakage and competitiveness impacts of policies, and how these might be addressed; policies to incentivise technological change in the medium to long-term; and the aggregate and distributional impacts of climate change and the regional incentives required to build an environmentally effective coalition, taking into account the co-benefits of climate policies in terms of reduced air pollution and improved human health. The analysis also reviews current instruments in use and quantifies the impacts of the already adopted or declared emission targets in developed countries. Finally, it looks at how a global carbon market can built-up gradually from existing and prospective climate policies. This analysis is published in the book *The Economics of Climate*





Change Mitigation which was released in September 2009. This built on the modelling-based analysis undertaken for the *OECD Environmental Outlook to 2030* which was released in March 2008.

Key links:
www.oecd.org/env/cc/econ
www.oecd.org/env/outlook

Political Economy Issues: Competitiveness and Carbon Leakage

The OECD modelling work for *The Economics of Climate Change Mitigation* includes analysis of competitiveness and carbon leakage impacts of climate change mitigation policies, as well as some of the policy approaches that might be used to address these, such as Border Tax Adjustments or sectoral approaches.

A recent study also examined practical differences between taxes and tradable permits, using climate-based policies in the United Kingdom as the basis for the comparison.

In recent years, the International Energy Agency (IEA) work on climate policy has also addressed issues related to the competitiveness implications of unilateral emission caps, the interaction between electricity markets and CO_2 markets. "Issues Behind Competitiveness and Carbon Leakage" provides a comprehensive review of studies on carbon leakage, statistical analyses of leakage in the European Union for main industries, and a survey of possible response measures.

Finally, the Round Table on Sustainable Development housed at the OECD held a High Level Meeting in July 2009 to discuss carbon leakage and Border Tax Adjustments (see section 4.6).

Key links:
www.oecd.org/env/taxes
www.oecd.org/env/cc/econ
www.iea.org/textbase/publications/index.asp

1.2 Adaptation to Climate Change

Efforts to reduce GHG emissions need to move hand-in-hand with policies and incentives to adapt to the impacts of climate change. Recent OECD work on adaptation has focused on three main streams of work: economic aspects of adaptation; integrating adaptation in development co-operation; and adaptation in domestic OECD contexts.

Economic Aspects of Adaptation

How much adaptation might cost, and how large its benefits might be, are issues that are increasingly relevant both for on-the-ground projects and in international contexts. Ongoing OECD work in this area focuses on a critical assessment of adaptation costs and benefits, both at sectoral level as well as in national and global contexts. Economic modelling work is also underway to better examine the synergies and trade-offs between mitigation and adaptation policies.

This work is also examining the potential for economic and policy instruments to incentivise and motivate adaptation actions. Outputs of this work include the book *Economic Aspects of Adaptation to Climate Change — Costs, Benefits and Policy Instruments* (2008), and a 2009 report on modelling of adaptation costs and benefits using Integrated Assessment Models. Ongoing work is examining the role of the private sector in fostering adaptation in both developed and developing country contexts.

Key links:
www.oecd.org/env/cc/adaptation
www.oecd.org/env/cc/ecoadaptation

Integrating Adaptation in Development Co-operation

This work has focused on putting adaptation to climate change in the mainstream of development co-operation.

In 2006, Development and Environment Ministers from OECD Countries endorsed a *Declaration on Integrating Climate Change Adaptation into Development Co-operation*, in which they called for "meaningful co-ordination and sharing of good practices on integrating climate change adaptation in development co-operation".

Follow-up work to this Ministerial Declaration includes a report which takes stock of the progress made on integrating adaptation into development co-operation activities, and a *Policy Guidance on Integrating Adaptation into Development Co-operation.* This policy guidance was endorsed at the Joint High Level Meeting of the OECD Development Assistance Committee and the Environment Policy Committee in May 2009, when participants adopted a *Policy Statement* on this issue (see section 3.1 and 4.5).

Key links:
www.oecd.org/env/cc/adaptation/guidance
www.oecd.org/dac/environment/climatechange

Adaptation in Domestic OECD Context

This line of work focused on two main areas: i) an assessment of broad trends in progress on assessment and implementation of adaptation to climate change in developed countries; and ii) an analysis of adaptation to climate change in the winter tourism sector and with respect to natural hazards in the European Alps, resulting in the publication of the book *Climate Change in the European Alps — Adapting winter tourism and natural hazards management*.

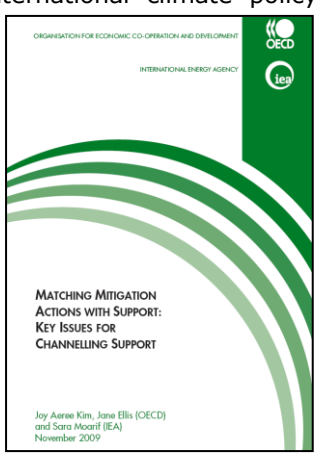
In addition, several reports were published on the role that national policy frameworks for various sectors play in adaptation to climate change. New work in 2009-2010 will look at adaptation in the agriculture sector (see section 2.1).

Key links:
www.oecd.org/env/cc/adaptation
www.oecd.org/dac/environment/climatechange
www.oecd.org/env/cc/aixg

1.3 Post-2012 Framework

Much of the OECD's work on assessing options for a post-2012 climate change framework is undertaken via the Annex I Expert Group (AIXG), run jointly by the OECD and the IEA (see section 4.3).

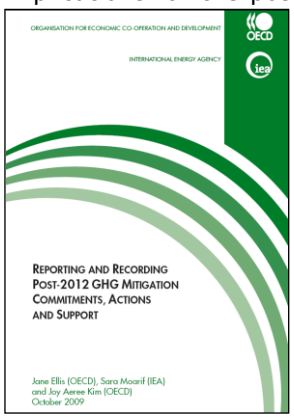
Analytical work from this Group has played an important role in building understanding and support for the use of market instruments (*e.g.* emissions trading and Clean Development Mechanism (CDM) in the Kyoto Protocol) and for harmonised monitoring, reporting and compliance assessment in international climate policy responses.



Recent work focuses on the post-2012 climate change framework and key parts of the Bali Action Plan: measurement, reporting and verification of mitigation actions and support; finance and matching of finance to action; mitigation potential; and adaptation in a post-2012 framework; reducing emissions from deforestation and forest degradation in developing countries (REDD); and market mechanisms including sectoral approaches for mitigation.

Measurement, Reporting and Verification

The Bali Action Plan introduces the phrase "measurable, reportable and verifiable" (MRV) in the context of countries' post-2012 GHG mitigation actions and commitments, and in the context of support of such actions. A number of AIXG papers examine possible interpretations of such language, and their implications for the post-2012 framework. Recent work explores MRV options for different types of mitigation actions and highlights decision points needed to establish a post-2012 framework. Ongoing work is assessing the possible form and content of a registry or schedule of nationally appropriate mitigation actions (NAMAs) and how mitigation actions and support could be reported or recorded in a post-2012 framework.



Key links:
www.oecd.org/env/cc/aixg
www.oecd.org/env/cc/mrv

Finance and Matching of Finance to Action

A key issue in a post-2012 agreement is how to scale up and better match financial support with mitigation actions in developing countries as well as how to improve accountability or monitoring of financial support. "Financing Climate Change Mitigation: Towards a Framework for Monitoring, Reporting and Verification" traces aggregate financial flows, the origins and sector endpoints of existing mitigation support that is flowing from developed to developing countries; it also proposes a structure and approach for a strengthened system for MRV. Another paper, "Linking Mitigation Actions with Support in Developing Countries: A Conceptual Framework", explores a number of principles for a conceptual framework to link or match mitigation actions with mitigation support. A follow-up "Matching mitigation actions with support: key issues for channelling support" documents experience with, and possible designs for, a mechanism to match support with nationally appropriate mitigation actions in developing countries.

Key links:
www.oecd.org/env/cc/aixg
www.oecd.org/env/cc/financing

Mitigation Potential and Differentiation

The Bali Action Plan calls for nationally appropriate mitigation commitments or actions by developed country Parties and nationally appropriate mitigation actions by developing country Parties bearing in mind their differences in national circumstances. A recent paper "Differentiating Countries in terms of Mitigation Commitments, Actions and Support" (2008) explores approaches and possible

indicators for a post-2012 differentiation framework. Another recent paper (2009) "National and Sectoral GHG Mitigation Potential: A Comparison Across Models" examines the range of mitigation potential across national and international models for six economies.

Key links:
www.oecd.org/env/cc/aixg

Reducing Emissions from Deforestation and Forest Degradation in Developing Countries

Emissions from deforestation and forest degradation are estimated to account for up to 17% of global GHG emissions and analysis suggests it is a low-cost mitigation option. AIXG work on REDD has examined issues including the drivers and causes of deforestation; what lessons can be learned from existing environmental policies such as the Payments for Ecosystem Services programmes in Costa Rica and Mexico for a REDD mechanism; and how to design and implement REDD financing mechanisms (whether fund or market based) to ensure environmentally — and cost-effective emission reductions. Other recent OECD REDD-related work includes "Promoting Biodiversity Co-Benefits in REDD".

Key links:
www.oecd.org/env/cc/redd

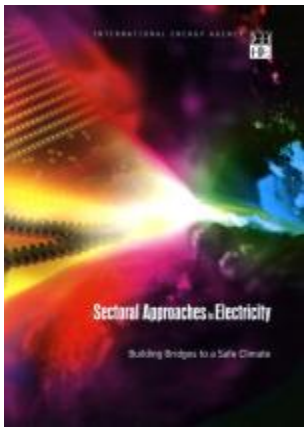
Scaling up mitigation: Sectoral Approaches

Sectoral approaches offer the potential to scale up GHG mitigation, and so are a potentially attractive — although as yet undefined — option for future mitigation actions.

OECD and IEA have been working on sectoral approaches to GHG mitigation since 2005, under the aegis of the AIXG. Several different papers have explored various aspects of different potential sectoral approaches in detail, for example, different ways of designing "sectoral crediting mechanisms", institutional implications of different design choices, and exploring how different sectoral approaches could be integrated into a post-2012 climate regime.

Since Bali, and its report on *Sectoral Approaches to Greenhouse Gas Mitigation — Exploring Issues for Heavy Industry*, the IEA has continued its analysis of this issue. Sectoral approaches are featured in the climate policy scenarios of the *World Energy Outlook 2008*. OECD work on economic and environmental modelling reflected in (2009) *The Economics of Climate Change Mitigation* also includes analysis of the potential and scope of sectoral approaches in a post-2012 climate regime.

The book *Sectoral Approaches in Electricity — Building Bridges to a Safe Climate* asks how the international climate policy framework can effectively support a transition towards low-CO_2 electricity systems in developing countries. The growth in power demand in these countries, and the fossil fuel resources that fuel it, create the risk of a carbon lock-in in the next two decades, making it either impossible or overly costly to achieve stabilization of CO_2 concentrations at sustainable levels. The technology mix needed to avoid such a development is clear: higher generation efficiency, CO_2 capture and storage, nuclear and renewables. For the most part, developed countries are turning to CO_2 pricing, via emissions trading systems, to steer generation away from carbon-intensive production modes. Following the same logic, sector-level crediting of emission reductions is proposed for that purpose in developing countries. This new book explores the pros and cons of such an approach in a few key emerging economies and asks how international climate policy could support and enhance ongoing efforts on end-use energy efficiency and on lowering the CO_2 content of supply.



The Round Table on Sustainable Development held a High Level Meeting in March 2009 to discuss sectoral approaches (see section 4.6).

Key links:
www.oecd.org/env/cc/aixg
www.oecd.org/env/cc/sectoral
www.worldenergyoutlook.org

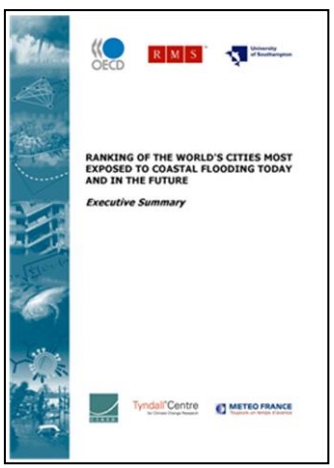
1.4 Cost of Policy Inaction and Benefits of Action

The costs of not responding to climate change can be considerable. In 2009, a new OECD working paper –"Assessing the Impacts of Climate Change" – highlights that there are large uncertainties, which are not fully reflected in existing estimates of global impacts of climate change in monetary units. Nevertheless, two features of the impacts of climate change tilt the balance in favour of action: their irreversibility, and the risk that they are extreme.

This builds on a 2008 book — *Costs of Inaction on Key Environmental Challenges* — which offers a framework that interprets recent damage cost estimates. These include characterising uncertainty;

thresholds and irreversibilities; the long-run nature of environmental problems; the degree of substitutability between environmental resources and other inputs into the economy; the distribution of environmental impacts, and their links to social concerns about equity; and the endogeneity of responses to changing environmental conditions (*e.g.* adaptation). On-going work is focusing on the distributional impacts of inaction, with climate change being one focus area.

Other work on the benefits of climate change policies covers both the direct, indirect and co-benefits of action. One strand focuses on methods and metrics to assess the climate change impacts under scenarios of inaction and the change in impacts by sector (*i.e.* in agriculture and coastal zones) and across different scales (from global to local scale). This also includes a conceptual framework for the economic assessment of impacts and policy benefits at an urban scale.



Focusing on the importance of local understanding, a series of working papers assesses the economic impacts of and vulnerability to climate change at a local scale. For example, "Ranking Port Cities with High Exposure and Vulnerability to Climate Extremes" shows that the impact of climate change could more than triple the number of people in port cities globally that are exposed to coastal flooding by 2070. Two other papers develop in-depth case studies on the port cities of Copenhagen (2008) and Mumbai (forthcoming), estimating the economic benefits of both global mitigation and adaptation at local scales.

Finally, mitigation policies may also yield significant co-benefits on a national scale, which can offset the costs of action. These include health benefits from improved air quality, and quality of life improvements from less congested and more liveable urban environments. A 2009 Working Paper —"Co-Benefits of Mitigation Policies" — provides an update of understanding of these corollary benefits and looks at how they may strengthen the incentives for developing countries to participate in a global climate change mitigation agreement.

Key links:
www.oecd.org/env/cc/cities
www.oecd.org/env/cc/benefits

2 Sector-Specific Analysis

2.1 Agriculture and Fisheries

Recent OECD work in this area includes a report published in 2008 on the *Environmental Performance of Agriculture in OECD Countries Since 1990*, which includes comparative data on agriculture's GHG emissions. A 2008 study entitled *Biofuel Support Policies: an Economic Assessment* examines inter alia the effects on GHG emissions of policies to promote biofuels. In particular it estimates the policy cost of avoiding GHG emissions, and applies a modelling approach to analyse the environmental effects of agricultural policies that lead to a shift in land use to the production of feedstocks for biofuels. The study also includes work by the IEA on life cycle analysis of feedstocks for biofuels, focusing on the GHG impacts.

The OECD Joint Working Party on Agriculture and the Environment is focusing on the role of policy in mitigating agriculture's GHG emissions and adaptation of agriculture to climate change in 2009-10. A report reviewing the latest evidence on the effects of climate change on agriculture provides the context to these projects. The aim of the mitigation study is to identify potential trade-offs and synergies between GHG mitigation and other environmental objectives, such as water and air quality and biodiversity; and to analyse alternative agricultural policy and market approaches that have the potential to be cost-effective in delivering those multiple environmental benefits. The aim of the adaptation study is to analyse the role of OECD agricultural policies in facilitating or hindering adaptation of the sector, including modelling different policy scenarios of shifts in land use and production patterns due to climate change and alternative agricultural support measures.

The meeting of the Committee of Agriculture at Ministerial level in February 2010 will include discussion of agriculture and climate change and the future role of the OECD in addressing the issue. The Committee for Fisheries, on the invitation of the Korean Government, will host a Workshop on the Economics of Adapting Fisheries to Climate Change in June 2010. The Workshop will focus on adaption of fisheries to climate change in particular with a view to identify the fisheries management models that are suited to address climate change.

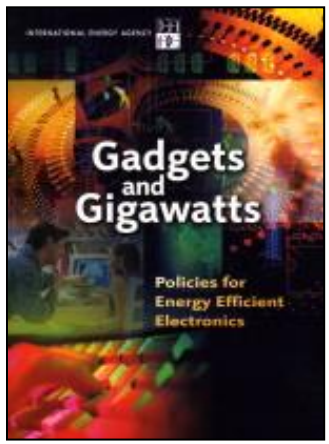
2.2 Energy

The IEA has been providing analytical work on the energy dimension of climate change since the early 1990s, originally with a focus on the implications of the UNFCCC and its Kyoto Protocol for the energy sector. The IEA also studies options for the future evolution of the international climate change mitigation regime, including for the OECD and IEA Annex I Expert Group on the UNFCCC (see section 4.3). The current IEA work covers areas such as emissions trading and other flexibility mechanisms, international sectoral approaches (see section 1.3), policies and measures, and international technology collaboration.

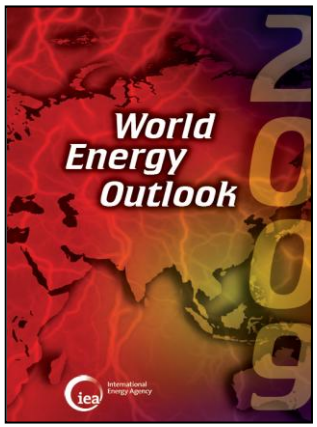
Energy Efficiency and Security

The Agency has extensive work on energy efficiency, a major possible contribution to GHG mitigation and to energy security objectives. At their meeting in Gleneagles (2005), the G8 leaders mandated the IEA to provide advice on a range of energy policy issues linked to climate change. In 2008, the IEA made energy efficiency recommendations over 25 areas. Its key outcomes in this area include: *Mind the Gap — Quantifying Principal-Agent Problems in Energy Efficiency* (2007), which is the first quantification of how market barriers and failures hamper rational energy use; *Promoting Energy Efficiency Investments* (2008) provides insightful case studies in the residential sector, based on IEA Member country experience. Of more direct interest to climate policy-makers, the IEA published: *Energy Security and Climate Policy — Assessing Interactions* (2007), a quantitative framework to evaluate synergies and conflicts between these two pillars of energy policy; *Climate Policy Uncertainty and Investment Risk* (2007), addresses the effect of policy design on investment choices based on risk-analysis.

IEA's new book *Gadgets and Gigawatts: Policies for Energy Efficient Electronics* (2009) includes a global assessment of the changing pattern in residential electricity consumption over the past decade and an in-depth analysis of the role played by electronic equipment. It reviews the influence that government policies have had on creating markets for more energy efficient appliances and identifies new opportunities for creating smarter, more energy efficient homes.



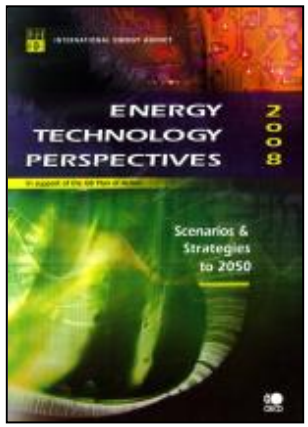
World Energy Outlook and Energy Technology Perspectives



The 2009 edition of the *World Energy Outlook* provides updated projections that take into account the implications of the global credit crisis, the economic slowdown and the recent slump in the prices of oil and other forms of energy. It also presents in-depth analysis of three special topics: financing energy investment under a post-2012 climate framework; prospects for global natural gas markets; and energy trends in Southeast Asia.

The *World Energy Outlook 2009* includes a *Climate Change Excerpt* which was released in October 2009 at the Bangkok UNFCCC meeting to coincide with key climate discussions in the run-up to Copenhagen. This publication sets out the latest energy trends and their impact on GHG emissions, updated in light of the financial crisis, as well as detailing a pathway for the energy sector to achieve a transition to a low-carbon world – with a particular focus on the investments needed between today and 2020, a focal point for the international negotiations. The full report, release in November, contains substantially more climate change data and analysis, as well as information on natural gas market prospects.

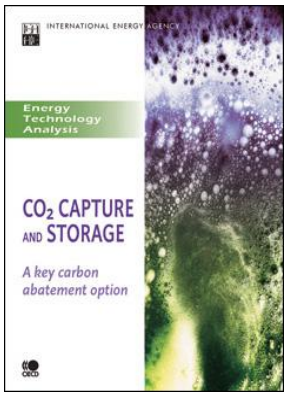
The IEA also produces the *Energy Technology Perspectives* (2008) which describes various technology development scenarios that would allow returning global CO_2 emissions to current levels, or half of these, by 2050. It also describes technology road maps that identify priorities for action if ambitious emission goals are to be realised by 2050. It includes estimates of capital requirements and energy and cost savings of their scenarios.



Key links:
www.worldenergyoutlook.org
www.iea.org/textbase/techno/etp/index.asp

Carbon Capture and Storage

The IEA explores a range of technology options, including CO_2 capture and storage from energy-using installations such as power plants. *CO_2 Capture and Storage — A key carbon abatement option* (2008) evaluates a range of issues related to this promising, yet-to-be-deployed technology: cost projections, transport and storage, the appropriate demonstration efforts, as well as support measures, regulatory

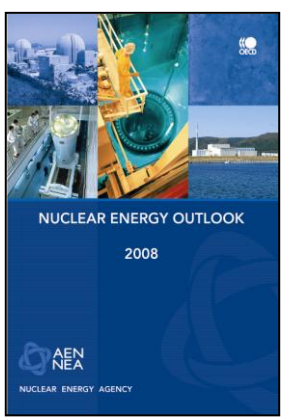


frameworks and public awareness for broader adoption of carbon capture and storage as part of an effective climate change mitigation strategy.

OECD and IEA have also assessed through the work of the AIXG issues relevant to the inclusion of carbon capture and storage in the CDM.

Key links:
www.iea.org/textbase/publications/index.asp
www.oecd.org/env/cc/aixg

Nuclear Energy Outlook



Many governments are now giving further consideration to the use of nuclear energy, particularly because of its very low full life-cycle carbon emissions and for reasons of security of energy supply. The Nuclear Energy Agency provides factual studies to assist in these evaluations. The 2008 *Nuclear Energy Outlook* is a major study examining all the issues affecting the future of this energy source, including its potential role in reducing GHG emissions. The book contains a wide range of data and information of use to those countries that may choose to use nuclear energy to address climate change concerns. In particular it addresses the key questions of the build rate for reactors and the availability of uranium to fuel an expanded world fleet; neither presents a limitation to a very considerable expansion.

Key links:
www.nea.fr/neo

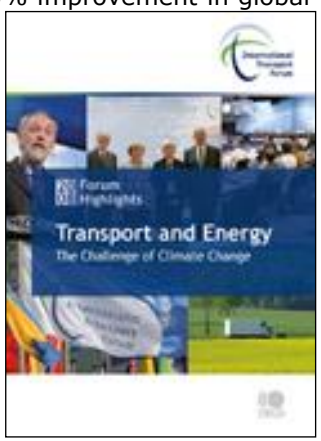
2.3 Transport

The International Transport Forum (ITF) recent work focused on policies and measures to reduce CO_2 emissions from the transport sector which have resulted in the reports *Cutting Transport CO_2 Emissions: What Progress?* and *Making Cars more Fuel Efficient* (with the IEA). Other recent reports from the ITF and the Joint Transport Research Centre of the OECD include *Can Cars Come Clean? Strategies for Low Emission Vehicles* and *Strategies to Reduce Greenhouse Gas Emissions from Road Transport: Analytical Methods*.

The ITF has held its first two Ministerial meetings in 2008 and 2009 on of themes of "Transport

& Energy: The Challenge of Climate Change" and "Transport and the Global Economy". Both forums included extensive discussions of transport GHG reduction trends and policies both nationally and internationally. The 2008 Forum released a set of agreed key messages from ministers and the 2009 Forum included in-depth discussions of Aviation and Maritime emission reduction policies. Key messages, papers, presentations and broadcasts from both forums can be viewed on the ITF website. The 2010 forum on Transport and Innovation (25-28 May, 2010 in Leipzig) will include several sessions pertaining to low-carbon innovation in the transport sector.

Along with its partners the United Nations Environment Programme, the IEA and the FIA Foundation, the ITF launched the Global Fuel Economy Initiative in 2009 that seeks to accelerate developments leading to a 50% improvement in global light-duty vehicle economy by 2050. This ambitious fleet-wide goal could be reached largely through cost-effective improvements in current vehicle technologies.



The ITF-OECD Joint Transport Research Centre's working group on "Transport Sector GHG Reduction Strategies" will release a comprehensive report in early 2010 that takes into account recent technology and policy developments – including the outcome of COP 15 in Copenhagen. Other work has focused on fuel efficiency improvements in heavy goods vehicles, Eco-driving (both with the IEA). The ITF work has also focused on the GHG abatement potential and costs of biofuels; on the impact of oil prices and oil dependency for transport; and on the cost and effectiveness of policies to reduce vehicle CO_2 emissions.

An OECD and ITF Global Forum in 2008 examined transport and environment integration, in the context of the global economy. Much of this meeting focused on policies and instruments for dealing with transport-based GHG emissions. Drawing on updating papers prepared for this forum, the book *Globalisation, Transport and the Environment* will be issued in January 2010.

Finally, an increasing number of countries apply CO_2-related tax rate differentiation in their motor vehicle taxes. The OECD report "Incentives for CO_2 Emission Reductions in Current Motor Vehicle Taxes" gives an overview over current usage, and the paper "The scope for CO_2-based differentiation in motor vehicle taxes - In equilibrium and in the context of the current global recession" discusses the rationale behind such differentiation.

Key links:
www.oecd.org/env/transport
www.oecd.org/env/transport/GFSD
www.internationaltransportforum.org
www.50by50campaign.org

2.4 Waste

The OECD Working Group on Waste Prevention and Recycling is carrying out work in 2009-10 that will examine the potential for GHG mitigation from an integrated (life-cycle) approach to materials and waste management.

Work is also being undertaken to analyse life-cycle approaches to information and communication technologies design, production, use and disposal under the auspices of the OECD Working Party on the Information Economy.

Key links:
www.oecd.org/sti/ict/green-ict

2.5 Tourism

The OECD Tourism Committee is carrying out work in 2009-10 that aims to improve the integration of sustainability in national tourism policies. In particular, the Committee will review current challenges related to climate change at mature tourism destinations. The review will do a cross-country analysis of the key priority areas (*e.g.* air transport emissions, tourism infrastructure emissions, economic mitigation instruments, adaptation to climate mitigation policies, eco-efficiency of tourism programs, impacts on tourism mobility, data and information needs, etc.) and of the programmes and measures implemented at national level by countries to address these priorities. With this activity, the OECD Tourism Committee aims to develop a more long-term agenda for its work in this area.

Key links:
www.oecd.org/cfe/tourism

3 Cross-Cutting Issues

3.1 Development Co-operation

The Development Assistance Committee has joined forces with the Environment Policy Committee to work on mainstreaming climate change considerations within development processes. A particular focus has been on integrating adaptation to climate change into development co-operation (see section 1.2). In this regard a *Policy Guidance on Integrating Climate Change Adaptation into Development Co-operation* has been developed. The OECD will develop additional analysis and policy guidance for implementing climate change responses. This will include work on capacity to adapt to climate change, as well as sector-specific guidance, for example in the agriculture, water or energy sectors. In addition the OECD Development Assistance Committee is undertaking work on applying the lessons learned from decades of development co-operation to climate change financing, as well as on climate change mitigation (see section 4.5).

The OECD collects data on levels of official development assistance (ODA) targeting the objectives of the UNFCCC through the so-called "Rio markers". In June 2008, the Development Assistance Committee members approved the inclusion of the Rio markers as permanent items of their statistical reporting requirements. The Rio marker on climate change relates to climate change mitigation only, with no data currently available on ODA spending for adaptation. A Task Team has been established to develop a statistical approach to track ODA in support of climate change adaptation. The Task Team is furthermore reviewing the quality of reporting on the existing Rio markers with a view to improving the comparability of the data between donors.

Key links:
www.oecd.org/dac/environment/climatechange
www.oecd.org/dac/stats/crs
www.oecd.org.dac/stats/rioconventions

3.2 Clean Innovation

Innovation in Energy Technology

The OECD Innovation Strategy focuses on innovation for global challenges, including climate change as part of its whole-of-government approach to innovation; a

range of work is underway in this area. The OECD *Compendium of Patent Statistics 2008* for instance includes indicators on environmental technology, nuclear energy, wind energy, and fuel cells.

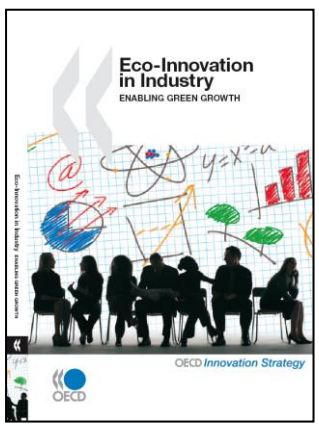
A number of OECD governments and firms are now placing a strong emphasis on eco-innovation to address priority environmental issues, including climate change, while addressing concerns about the competitive impacts of environmental policies. In conjunction with the European Commission's Environmental Technology Action Plan, the OECD is reviewing the policies and programmes that OECD countries have put in place to promote eco-innovation, including developing country profiles.

On-going analytical work assesses how different policy instruments affect the incentives for firms and households to develop and adopt environment-friendly technologies (see the Policy Brief: "Business, Eco-innovation and Globalisation", 2008). More work is underway, on the development of indicators of innovation with respect to climate change mitigation (*e.g.* renewable energy, 'clean' coal). Analyses of the effects of specific policy measures (*e.g.* feed-in tariffs, renewable energy credits) on innovation have been undertaken, as well as an assessment of the role of the CDM in encouraging transfer of technologies.

Key links:
www.oecd.org/env/cpe/firms/innovation
www.oecd.org/sti/ipr-statistics

Sustainable Manufacturing and Eco-Innovation towards Systemic Improvements

Under the auspices of the Committee on Industry, Innovation and Entrepreneurship, a project on Sustainable Manufacturing and Eco-innovation was launched in 2008. A key objective is to promote the concept of eco-innovation as a new vision that will enable the creation of wealth and business opportunities through stimulating new technological and systemic solutions to climate change. The project has established an analytical framework of eco-innovation and reviewed eco-innovation examples, relevant policy initiatives, sustainable manufacturing indicators and eco-innovation measurement.



During 2009-10, a "sustainable manufacturing

toolkit" will be developed to help businesses improve their environmental performance by providing a means for them to benchmark their products and production processes. Best business and policy practices for eco-innovations that could lead to systemic solutions to climate change and other global challenges will be collected and analysed to draw lessons for policy makers and businesses. Furthermore, the expected structure change of existing industries and opportunities for new businesses by pursuing the green growth path will also be investigated. The initial first-year outcomes will be published as *Eco-Innovation in Industry: Enabling Green Growth* in December 2009.

Key links:
www.oecd.org/sti/innovation/sustainablemanufacturing

Economics of Eco-Innovation

The OECD has a project (2008-10) that assesses the policy and market determinants of innovation in several policy areas that relate to climate change. It also examines how international agreements and other factors affect opportunities for technology transfer and international research cooperation.

A second project examines the effects of environmental policy design on the adoption of innovative behaviour at the level of households. Part of this project focuses on transport and energy efficiency — both of which are directly relevant to the climate change problem.

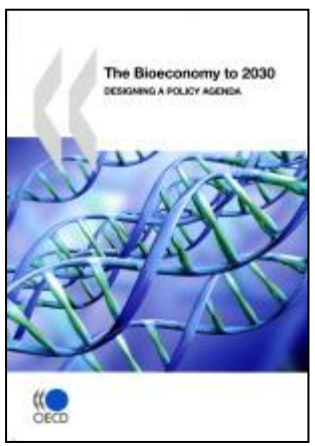
Key links:
www.oecd.org/env/cpe/firms/innovation

Biotechnology

Another on-going project focuses on the use of industrial biotechnology with effects on climate change, focusing on R&D, human resource and globalisation issues in relation to bioproducts, bioprocesses, and biofuels. Further work looks at the role and impacts of nanotechnology in the area of water, which has links to bio-energy issues, and in the role of nanotechnology in helping address energy and climate challenges. This work will continue in 2009-2010.

Bioeconomy

The OECD International Futures Programme published *The Bioeconomy to 2030: Designing a Policy Agenda*. With a prospective view, the report examines in the context of climate change the range of products and services being impacted by the biological sciences and their potential to further socio-economic goals in OECD and non-OECD countries, over the next 20

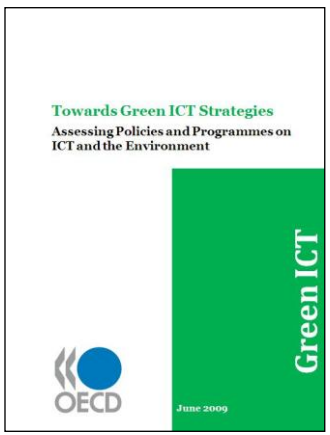


years. It identifies agricultural and industrial biotechnologies as areas where large contributions can be made to addressing climate change, by reducing the environmental impact of intensive agriculture and industrial production, and presents policy options for nurturing these technologies' full potential.

Key links:
www.oecd.org/futures/bioeconomy

Information and Communication Technology

The Committee for Information, Computer and Communications Policy works to address how Information and Communication Technologies (ICTs) can improve environmental performance and mitigate climate change in all sectors of the economy. This work will guide policy-makers on effective strategies to spur ICT-based innovation for green growth in the economic recovery.



The *Seoul Declaration for the Future of the Internet Economy* and the *OECD Green Growth Declaration* invite the OECD and relevant stakeholders to explore the role of ICTs and the Internet in addressing environmental challenges such as climate change, water stress, and biodiversity loss. The Committee for Information, Computer and Communications Policy has published a survey of government programmes and business initiatives on "Green ICTs"; a report on available statistics and data on "Green ICTs"; a report on sensor-based networks to improve environmental performance in areas such as transport, energy, buildings and agriculture.

The OECD held a high-level Conference on "ICTs, the Environment and Climate Change" in May 2009, hosted by the Danish government. Conference outputs highlight the role of clean technology investments to achieve ambitious CO_2 emissions reduction targets and other environmental objectives.

Key links:
www.oecd.org/sti/ict/green-ict
www.oecd.org/FutureInternet

Space Technologies

A recent OECD International Futures Programme report provides lessons learned on scientific, technical and economic outputs derived from using space applications in monitoring and managing climate change. Examples focus on water management, marine resources and maritime transport. The report also provides a review of methodologies when considering investments in Earth observation. Based on its foresight mission, the OECD International Future Programme is examining the role and impacts of the

space infrastructure in OECD and non-OECD countries (*e.g.* meteorology, Earth observation satellites). Further work is underway concerning the role of space applications in food supplies (*e.g.* crop monitoring from space) with a report planned for 2010.

Key links:
www.oecd.org/futures/space

3.3 Taxation

Tax Treatment of Tradable Permits

Emission trading can be a powerful tool to reduce emissions. Indeed, cap-and-trade and similar schemes based on tradable emission permits are under active consideration in a number of countries – and already well developed in Europe. Such schemes provide a market incentive to reduce emissions where it can be done at least cost.

However, businesses will make their choices based on the cost of abatement and permits net of corporate income tax, VAT etc. Therefore it is vital to avoid uneven tax treatment of tradable permits that could imply widely different abatement incentives for different emitters. The risk is particularly important in an international context and when linking carbon markets in the future.

The OECD Committee on Fiscal Affairs has now initiated an inter-disciplinary policy process to ensure that tax and environment objectives go hand in hand and that tradable permits work well in practice. A first meeting held in September 2009 brought together 80 tax and environment experts, including representatives from business and other stakeholders, to identify the key issues. The experts concluded that this was indeed an important issue where international cooperation and consistency is desirable. The OECD wants to engage in a discussion with all interested countries to build viable global solutions.

Sorting out potential problems early on is vital for easing the administrative complexities and compliance costs for businesses – thereby building a wider social support for effective action against climate change. And by taking this initiative, OECD countries can take a constructive lead in establishing international practices to the advantage of all countries.

Taxation, Innovation and Climate Change

Tradable permits, taxes and other policy instruments that put a price on carbon emissions give incentives to innovate in ways that help reduce emissions and in ways that are less burdensome for

industry. A major ongoing study based in the OECD's Joint Meeting of Tax and Environment Experts is casting fresh light on what conditions bring about climate and other environmental innovation. Brand new technologies are important, but so are innovations within companies adapting organisational forms and practices. A number of case studies of OECD countries have already been completed, such as two on the United Kingdom climate change levy. Building on a number of interim elements, a synthesis report is to be released in early 2011.

Key links:
www.oecd.org/env/taxes

3.4 Cities and Regional Governance

How cities develop will affect both global GHG emissions and the vulnerability of nations to unavoidable climate change. Work at OECD aims to support more climate-sensitive local and regional development policies.

Recent OECD working papers focus on local integrated assessments of climate change impacts and policies at a local scale, including a conceptual framework and case studies featuring analyses of major port cities (see also 1.4).

Another working paper "Cities, Climate Change and Multi-level Governance" (2009), reviews the role that cities can play in the design and delivery of cost-effective climate policies and how national governments can assist them. A new report on *Competitive Cities and Climate Change* (2009) analyses the relationships between climate change and urban development through a focus on spatial planning, urban financing and fiscal policies, green growth and innovation, and complementary transportation, land-use, building and public services policy packages.

In 2010, work will continue on the urban and regional dimensions of climate policies. This will include an analysis of the impact of green growth initiatives on jobs and climate change goals, the effect of different urban spatial forms on CO_2 emissions, and case studies on urban climate activities. Other work will focus on better understanding the potential for sub-national governments to contribute to cost-effective climate change solutions within the framework of multi-level governance.

Key links:
www.oecd.org/gov/urbandevelopment/climate change
www.oecd.org/env/cc/cities

3.5 Trade and Investment

Private Investment and Climate Change

A new strand of work is focusing on investment and climate change looking at good government policies and responsible business practices to enhance the contribution of private and international investment to reducing carbon emissions. In 2009, a first analysis was undertaken to review responsible business practices and initiatives to reduce emissions in OECD and non-OECD countries, building on the

OECD *Guidelines for Multinational Enterprises*. Further work will involve examining the government policies that can contribute to mobilizing private investment in support of green growth, building on OECD's understandings of good investment and environment practices. This will build on the OECD *Policy Framework for Investment* and on a number of country case studies.

Key links:
www.oecd.org/env/cc
www.oecd.org/daf/investment

Trade and the Environment

Within the OECD's Joint Working Party on Trade and the Environment, several studies are currently being conducted on trade and climate change. One analyses the extent to which trade liberalisation and subsequent changes in global transportation impact on climate change, and examines technological and policy options to reduce these impacts. A second project is examining the environmental and trade effects of various private and public "carbon footprint" initiatives to account for the life-cycle GHG emissions of specific products.

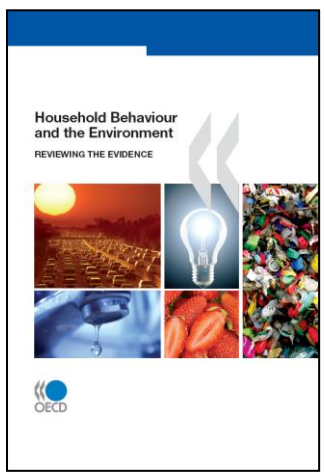
Both of these topics were explored in an OECD Global Forum on Trade and Climate Change, held at the OECD's headquarters in June 2009. The Forum, which attracted more than 120 experts from governments, industry, academia and civil society, also discussed issues related to leakage and competitiveness; trade in climate-related goods and services; and subsidies to fossil fuels.

On-going OECD work in this area also includes "The measurement of CO_2 embodiment in international trade: Evidence from the OECD Input-Output Tables for the mid-1990s - early 2000s", which examines the changes in national levels of carbon emissions that may occur as a result of globalisation.

Key links:
www.oecd.org/trade/globalforum/june09

3.6 Empowering Consumers

Well informed, empowered consumers are a powerful ally in the fight against climate change. They can contribute to the reduction of carbon emissions by using available energy more efficiently or moving to climate-safe technologies.



The Committee on Consumer Policy is examining current practices in consumer protection against fraudulent and misleading environmental claims in terms of both business practices and products. This work will highlight differences and similarities across OECD countries with

regard to defining sustainable products, requiring company sustainability reporting, and monitoring advertising and labelling. The Committee is also developing a consumer policy toolkit that could be applied to reviewing the conditions under which governments may want or need to intervene in markets to promote sustainable consumption, with regard to specific aims (*e.g.* addressing climate change). Based on the OECD Report on *Promoting Consumer Education*, the Committee is developing recommendations that include the sustainable consumption aspects, to assist policy makers in developing effective consumer education policies to promote sustainable consumption.

Further work is underway in the Environment directorate looking at the demand side of environmental policy and ways to promote a low carbon economy. A first OECD household survey was implemented in 2008 to analyse how governments can induce greener behaviour of households when consuming energy at home and choosing transportation modes (forthcoming publication). A new survey will focus on the adoption by households of innovations such as renewable energy and alternative fuel vehicles.

Key links:
www.oecd.org/sti/consumer-policy
www.oecd.org/env/cpe/consumption

3.7 Employment and Local Development

An ongoing study led by the Local Economic and Employment Development Directing Committee aims at providing the support and advice that national and local stakeholders need to maintain their employment levels while expanding into greener activities. The project examines the adjustments required at the local level to ensure that labour markets comply with the demands of a greener economy, and examines the expansion of good quality green jobs as an opportunity to develop low carbon activities. It includes the identification and assessment of new green economic niches, the definition of stimulus frameworks, and the implementation of programmes to educate, train and re-skill the labour force.

4 Fora for Climate Change Discussion

4.1 Advisory Unit to the Secretary-General

The International Futures Programme, the OECD's strategic foresight group under the Secretary-General, has several relevant ongoing projects. First, it published *The Bioeconomy to 2030: Designing a Policy Agenda* (see section 3.2), which provides a prospective analysis of the role agricultural and industrial biotechnologies could play in addressing climate change. Second, in collaboration with numerous space agencies in the OECD, work is underway on the use of space-based tools (earth observation, navigation) in monitoring climate change and its long-term impacts. A first report has been published: *Space Technologies and Climate Change* (see section 3.2). Work is underway on the new role of space applications for food security (*e.g.* crop monitoring from space). Third, a two year project was launched on infrastructure to take stock of the longer-term opportunities and challenges facing gateway and corridor infrastructure (ports, airports, rail corridors, oil and gas pipelines). The project is exploring future needs to 2030 and 2050 in the context of expected climate change - CO_2 emissions reduction, low carbon intensity and green growth policies. Finally, reviews of risk management policies are underway to help assess the capacity of a selected number of member countries to manage major floods, droughts and landslides, which are expected to increase as a result of climate change. After Japan, the latest reviews include Italy's National Civil Protection Service and France's risk management of major flooding in the Loire river basin. Reports will be published in early 2010.

Key links:
www.oecd.org/futures
www.oecd.org/sti/gsf

4.2 Africa Partnership Forum

The Africa Partnership Forum Support Unit worked with key African institutions including UN Economic Commission for Africa, the New Partnership for Africa's Development Secretariat, the African Union Commission and African Ministerial Conference on the Environment along with the UNFCCC and African Climate Change negotiators to support the first thematic Africa Partnership Forum Special Session on Climate Change, hosted by UN Economic Commission for Africa at its Headquarters in Addis Ababa, Ethiopia, in September 2009. The event focused on Africa's concerns and expectations in the run up to the

UNFCCC COP15. The meeting was addressed by Prime Minister Meles Zenawi of Ethiopia, Ministers from African countries and Africa's development partners. A *Joint Statement* issued at the end of the meeting was transmitted to the UN High Level event on 22 September and the G20 Summit at Pittsburgh and will also inform other regional and international processes on climate change. The Support Unit coordinated the preparation of two background papers for the Special Session: "Enhanced Action on Technology Development" and "Transfer and Carbon Finance in Africa". These accompanied 3 papers prepared by the African Union Commission and New Partnership for Africa's Development Secretariat on: "Enhanced Action on Adaptation to Climate Change", "Enhanced Action on Mitigation of Climate Change" and "Financial Resources and Investment for Climate Change". Papers and the Joint Statement are available on the Africa Partnership Forum website.


Africa Partnership Forum

Special Session on Climate Change

Hosted by UN Economic Commission for Africa

Addis Ababa, Ethiopia

3 September 2009

Enhanced Action on Technology Development and Transfer

Contents

I. Overall context 3

II. Africa's concerns and expectations 4

III. Progress on capacity building and impact 5

IV. Recommendations to parties 6

This document was prepared for the Special Session of the Africa Partnership Forum on Climate Change, in Addis Ababa on 3 September 2009. It has been shared in draft between the AU Commission, the NEPAD Secretariat, the UN Economic Commission for Africa, and the Support Unit. The final version is issued under the responsibility of the lead institution responsible for the drafting of each paper – in this case the Support Unit.

1 APF SPECIAL SESSION/07

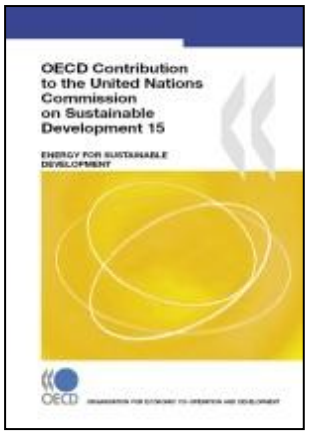
Key links:
http://www.africapartnershipforum.org/climatechange

4.3 Annex I Expert Group on the UNFCCC

The OECD and the IEA jointly provide the secretariat for the AIXG on the UNFCCC. Established in 1994, the AIXG meets twice a year to discuss analytical reports on topical issues in the climate change negotiations and provides a forum for Annex I countries to share experiences with climate change policies and views on how to address the climate change challenge. More recent work focuses on the post-2012 climate change framework and includes analyses and publications on linking mitigation actions with support; MRV of mitigation actions; differentiation of commitments and mitigation potential of countries; REDD; sectoral approaches for mitigation; and adaptation in a post-2012 framework (see section 1.3). The AIXG also organises an annual seminar bringing together developed and developing countries to exchange information on climate change policies and issues.

Key links:
www.oecd.org/env/cc/aixg

4.4 Annual Meeting of Sustainable Development Experts



The OECD Annual Meeting of Sustainable Development Experts brings together delegates from across different policy areas to discuss issues of a cross-cutting nature related to sustainable development. An ongoing focus for its work is policies to encourage sustainable consumption and production, including with respect to reduced GHG emissions and improved energy efficiency. The Annual Meeting of Sustainable Development Experts produces an annual report on OECD work to support discussions at the UN Commission on Sustainable Development, the last biennium focused on climate change and energy issues, as contained in "OECD Contribution to the UN Commission on Sustainable Development 15: Energy for Sustainable Development" (2007).

Key links:
www.oecd.org/sustainabledevelopment

4.5 DAC Network on Environment and Development Co-operation

The Network on Environment and Development Co-operation of the OECD Development Assistance Committee has been working on climate change for over ten years. In 2006 the Network on Environment and Development Co-operation co-organised a Ministerial Meeting on environment and development co-operation with the Environment Directorate. The meeting resulted in the formation of a joint Task Team on climate change which produced the *Policy Guidance on Integrating Climate Change Adaptation into Development Co-operation* (see section 1.2). This policy guidance and an accompanying *Policy Statement* were approved at a Joint High Level Meeting in May 2009. The Joint High Level Meeting provided a clear mandate to work on climate change mitigation and low carbon growth in addition to climate change adaptation (see section 3.1).

Key links:
www.oecd.org/dac/environment/climatechange

4.6 Round Table on Sustainable Development

The OECD regularly hosts a Round Table on Sustainable Development that brings together Ministers and other high-level stakeholders from OECD and non-OECD countries for informal discussion on various topics related to sustainable development.

The Round Table is currently devoting its work programme (2008-10) to climate-related subjects. Meeting topics to date have included: mobilising investments in low emission technologies; the role of public finance in international climate change mitigation; sectoral approaches in a post 2012 climate agreement; competitiveness, leakage, and border tax adjustment; and comparability of climate change commitments amongst Annex I countries.

The Round Table is a unique forum that enables Ministers, senior private sector executives and experts from the inter-governmental and NGO communities to conduct a detailed examination of complex issues to one side of the crowded negotiating process. It draws on the full policy capability of the OECD and the IEA, and provides an invaluable opportunity for 'back channel' dialogue.

Key links:
www.oecd.org/sd-roundtable

4.7 Round Table on Urban Development Strategy

The OECD Round Table on Urban Strategy of Mayors and Ministers provides a global platform involving both high-level national and local governments to discuss urban development issues in a global perspective. The 2008 Round Table, held in Milan, focused on climate change issues. Mayors and Ministers endorsed continued policy dialogue and action that strengthens relationships between city competitiveness and climate change, and invited the OECD to continue pooling and systematising knowledge around local climate change policies and inter-governmental tools for collaboration for climate change action. A special session on "'Greening' Cities: An Option for Recovery?" held at the March 2009 OECD's Ministerial Meeting on Regional Development and an international workshop on "Green Cities: New Approaches to Confronting Climate Change" in Las Palmas in June 2009 built on this theme. Results of the work on competitive cities and climate change will be discussed at the 3rd meeting of the Round Table in June 2010.

Key links:
www.oecd.org/gov/urbandevelopment

4.8 Sahel and West Africa Club

Together with governments, regional institutions and civil society and private sector organisations, the Sahel and West Africa Club supports the development and implementation of action-oriented policies and investments that take into account the complementarities between local, national and regional levels. The Sahel region is the most ecologically fragile zone. The Sahel and West Africa Club has produced a regional analysis on climate change and its impacts on West Africa. The Club also helps raise awareness of national farmers' organisations in the region on climate change issues and develop their common positions on them.

Key links:
www.oecd.org/swac

5 Relevant Recent or Forthcoming Publications and Reports

ECMT (2007): *Cutting Transport CO_2 Emissions: What Progress?*

ECMT (2006): *Cost Effectiveness of CO_2 Mitigation in Transport: An Outlook and Comparison with Other Sectors*.

IEA (2009): *Implementing Energy Efficiency Policies – Are IEA Member Countries on Track?*

IEA (2009): *Transport, Energy and CO2 – Moving Towards Sustainability.*

IEA (2008): *CO_2 Capture and Storage — A Key Carbon Abatement Option*.

IEA (2008): *Energy Efficiency Policy Recommendations.*

IEA (2008): *Energy Technology Perspectives 2008. Scenarios and Strategies to 2050.*

IEA (2008): *Promoting Energy Efficiency Investments — Case Studies in the Residential Sector.*

IEA (2008): *World Energy Outlook 2008.*

IEA (2007): *Climate Policy Uncertainty and Investment Risk*.

IEA (2007): *Energy Security and Climate Policy — Assessing Interactions.*

IEA (2007): *Mind the Gap – Quantifying Principal-Agent Problems in Energy Efficiency.*

IEA (2007): *Tracking Industrial Energy Efficiency and CO_2 emissions*.

OECD (2010, forthcoming): "Development Perspectives for a post-Copenhagen Climate Financing Architecture".

OECD (2010, forthcoming): *Globalisation, Transport and the Environment.*

OECD (2010, forthcoming): "Mumbai, Climate Change and Future Flood Risk: Exposure, Economic Losses and Adaptation Options".

OECD (2009): "Cities, Climate Change and Multilevel Governance", Working Paper.

OECD (2009, forthcoming) *Citizens in Focus: Public Engagement for Better Policies and Services*.

OECD (2009): "Competitive Cities and Climate Change", Working Paper.

OECD (2009): *Conference Proceedings: ICTs, the Environment and Climate Change.*

OECD (2009): *Eco-Innovation in Industry: Enabling Green Growth.*

OECD (2009): "Econometric analysis of the impacts of the UK Climate Change Levy and Climate Change Agreements on firms' fuel use and innovation activity", (www.olis.oecd.org/olis/2008doc.nsf/linkto/com-env-epoc-ctpa-cfa(2008)33-final).

OECD (2009, forthcoming): "Fuel taxes, motor vehicle emission standards and patents related to the fuel-efficiency and emissions of motor vehicles".

OECD (2009): "Incentives for CO2 Emission Reductions in Current Motor Vehicle Taxes", (www.olis.oecd.org/olis/2009doc.nsf/linkto/env-epoc-wpnep-t(2009)2-final).

OECD (2009): *Integrating Adaptation to Climate Change into Development Co-operation: Policy Guidance,* (www.oecd.org/env/cc/adaptation/guidance).
OECD (2009): "Measuring the Relationship between ICT and the Environment", (http://oecd.org/dataoecd/32/50/43539507.pdf).

OECD (2009): "Mitigating the Risk of Climate Change by Reducing Travel by Light Duty Vehicles", (www.olis.oecd.org/olis/2008doc.nsf/linkto/env-epoc-wpnep-t(2008)15-final).

OECD (2009): "Smart sensor networks: Technologies and applications for green growth".

OECD (2009): "Survey of firms' responses to public incentives for energy innovation, including the UK Climate Change Levy and Climate Change Agreements", (www.olis.oecd.org/olis/2008doc.nsf/linkto/com-env-epoc-ctpa-cfa(2008)34-final).

OECD (2009): *The Bioeconomy to 2030: Designing a Policy Agenda,* (www.oecd.org/futures/bioeconomy).

OECD (2009): *The Economics of Climate Change Mitigation: Policies and Options for Global Action Beyond 2012,* (*www.oecd.org/env/cc/econ/beyond2012*).

OECD (2009): "The scope for CO_2-based differentiation in motor vehicle taxes - In equilibrium and in the context of the current global recession", (www.olis.oecd.org/olis/2009doc.nsf/linkto/env-epoc-wpnep-t(2009)1-final).

OECD (2009): ''Towards Green ICT Strategies: Assessing Policies and Programmes on ICT and the Environment", (http://oecd.org/dataoecd/47/12/42825130.pdf).

OECD (2008): *An OECD Framework for Effective and Efficient Environmental Policy* (www.oecd.org/dataoecd/39/19/41644480.pdf).

OECD (2008): "Copenhagen, Sea Level Rise and Future Flood Risk: Exposure, Economic Losses and Adaptation Options".

OECD (2008): *Costs of Inaction on Key Environmental Challenges*.

OECD (2008): *Economic Aspects of Adaptation to Climate change: Costs, Benefits and Policy Instruments,* (www.oecd.org/env/cc/adaptation).

OECD (2008): "Environmental Innovation and Global Markets".

OECD (2008): *Environmental Policy, Technological Innovation, and Patents*.

OECD (2008): "Environmentally Related Taxes and Tradable Permits in Practice", (www.olis.oecd.org/olis/2007doc.nsf/linkto/com-env-epoc-ctpa-cfa(2007)31-final).

OECD (2008): *OECD Environmental Outlook to 2030*.

OECD (2008): *Space Technologies and Climate Change: Implications for Water Management, Marine Resources and Maritime Transport*, (www.oecd.org/futures/space).

OECD (2008): "Statement of Progress on Integrating Climate Change Adaptation into Development Co-operation".

OECD (2007): "Business Contribution to MEAs: Suggestions for Further Action". ENV/EPOC/GSP(2007)1/FINAL.

OECD (2007): *Climate Change in the European Alps: Adapting Winter Tourism and Natural Hazards Management.*

OECD (2007): "Environmentally Related Taxes and Tradeable Permits in Practice". COM/ENV/EPOC/CTPA/CFA(2007)31/FINAL.

OECD (2007): *Instrument Mixes for Environmental Policy.*

OECD (2007): "OECD Contribution to the United Nations Commission on Sustainable Development 15: Energy for Sustainable Development".

OECD (2006): *Environmental and Energy Products: The Benefits of Liberalizing Trade*.

OECD (2006): *The Political Economy of Environmentally Related Taxes*.

OECD (2006): "Metrics for Assessing the Economic Benefits of Climate Change Policies in Agriculture".

OECD (2005): *Bridge Over Troubled Waters: Linking Climate Change and Development.*

OECD (2004): *The Benefits of Climate Change Policies: Analytical and Framework Issues*.

NEA (2008): *Nuclear Energy Outlook*.

NEA (2008): *Uranium 2007: Resources, Production and Demand*.

NEA (2007): *Risks and Benefits of Nuclear Energy*.

Aasrud, A., R.Baron, B. Buchner and K. McCall (2009): "Sectoral Market Mechanisms – Issues for Negotiation and Domestic Implementation Mitigation Potential", OECD/IEA.

Baron, R. and I. Barnsley, J. Ellis (2008): "Options for Integrating Sectoral Approaches into the UNFCCC", OECD/IEA.

Baron, R. and J. Reinaud, M. Genasci, C. Philibert (2007): "Sectoral Approaches to Greenhouse Gas Mitigation – Exploring Issues for Heavy Industry".

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