CEPS Policy brief
No. 144 • October 2007

The Asia-Pacific Partnership on Clean Development and Climate: What it is and what it is not

Noriko Fujiwara

This paper presents an overview of the Asia Pacific Partnership, beginning with a literature review. This is followed by a comparison of the initiative with the EU energy and climate change package and an examination of the role that the Partnership can play in the emerging landscape of reorganising climate cooperation in both its formal and informal aspects: bilateral and multilateral technology partnerships which are compatible with the UNFCCC objective; and development of tools for measuring progress such as benchmarking, performance indicators and energy efficiency or environment indices. Through coordination with actions in each aspect in other parts of the world or those on a global scale, the Partnership could have wider implications beyond its partner countries.

I. Introduction

There has been a growing interest in the Asia Pacific Partnership on Clean Development and Climate, a multilateral initiative of six founding partner countries in the region – Australia, China, India, Japan, Republic of Korea and the US – for addressing air pollution, energy security and climate protection in a way that facilitates development and poverty eradication. On 15 October 2007, the Partnership marked a new phase of its development at the second Ministerial meeting in New Delhi, welcoming the entry of Canada as the seventh partner. Moreover the Ministers announced a portfolio of 18 flagship projects and activities and endorsed the Asia-Pacific Energy Technology Cooperation Centre (Asia Pacific Partnership, 2007b).

The Partnership is expected to provide a promising option to three main challenges: the unprecedented rate of economic growth and the corresponding level of energy demand and GHG emissions in emerging economies; increasing concerns with the level-playing field in markets of major commodities such as steel, aluminium, cement; and the need of cleaner technologies as a tool to move towards a low-carbon economy. It engages emerging economies in the region, China, India, and the Republic of Korea, on practical action for clean development and climate. It also encourages cooperation on estimating full potential to improve energy efficiency and reduce GHG emissions and identifying barriers to achieving the potential. Lastly, it intends to accelerate the development and deployment of cleaner technologies through specific projects ranging from R&D to information exchange and capacity- building.

2. Literature review

The majority of the literature on the Partnership was published at the time of announcement of its formation in 2005 or in the early stage in 2006, when information about its activities was largely limited. Nevertheless, it would be fair to suggest that the Partnership was initially received with cautious welcome at best or even scepticism among proponents of the Kyoto Protocol in the EU and even in the US (see Jeffords, 2006; Lieberman, 2006; Doniger, 2006).

There were, broadly speaking, two contrasting views, sharing suspicion about the Partnership on a conflicting assumption. A predominant assumption

Noriko Fujiwara is a Research Fellow at the Centre for European Policy Studies (CEPS). An earlier version of this paper was prepared as a background paper entitled "The Potential of the Asia-Pacific Partnership on Clean Development and Climate", for the fourth ECP Seminar on Strategic Aspects of Technology for the UNFCCC and Climate Change Debate: The Post-Bali Agenda, Brussels, 3 October 2007.

was that the Partnership will be less competent than the Kyoto Protocol. There will be lack of environmental effectiveness (lack of mandatory cap on absolute GHG emissions), lack of efficiency (lack of market mechanism, lack of close coordination among countries), and lack of resources, all of which was considered to reflect lack of commitments (Sherrard et al. 2006; Anderson 2006). Thus Partnership can be seen as a distraction or diversion from the Kyoto Protocol.

Another assumption was that the Partnership was strong enough to compete with and substitute for the Protocol and its successor. The Partnership encompasses countries which decided not to ratify the treaty (US, Australia) and non-Annex I countries (China, India and Republic of Korea). This leads to suspicion that the Partnership could become an alternative or substitute (McGee & Taplin, 2006; Bossley, 2005; for critique, see Kanie, 2007).

Foreseeing such suspicion partner countries explicitly stated that the Partnership will be 'consistent with and contribute to our efforts under' the UNFCCC and 'will complement, but not replace' the Kyoto Protocol. Among others Japan commits itself to both the Partnership and the treaty. Some also believe that the Partnership could complement or supplement the Protocol (Andresen, 2006; Skodvin & Andresen, 2007).

To set the scene, this paper stands on the understanding that the Partnership is not primarily or exclusively meant as a means to reduce GHG emissions but aims at GHG intensity improvement as one of the goals it set out.

3. What is the Asia-Pacific Partnership?[1]

The formation of the Asia-Pacific Partnership was announced in July 2005, followed by its official launch in Sydney in January 2006. The Partnership has two faces: a multilateral partnership involving seven countries in the Asia-Pacific region; and a public-private partnership on a regional scale. From the beginning it was *neither* supposed to be a rigid framework for negotiations in general or target-setting in particular *nor* a base for a regional market trading GHG emissions. It was meant to be an initiative for coordinating implementation of policies and projects. In essence it can be characterised as a sectoral approach combining cooperation on the development and deployment of technologies with reforms for removing barriers to mitigation potential.[2] Another important aspect which has been rather neglected is its decentralised structure accommodating space for divergence in national and sectoral circumstances. For example, China viewed its participation in the Partnership as the example of its active promotion of 'more international cooperation mechanisms that fit each country's specific situation and promote active involvement' (Zhang HB 2006). Given different national circumstances, the US stresses the context of nationally defined outcomes within which the Partnership works to identify needed methods, technologies and financial arrangements (Connaughton, 2006).

3.1 Aims & objectives

In the Asia Pacific Partnership partners have come together voluntarily to advance clean development and climate objectives, recognising the urgent need of development and poverty eradication. They envisage enhanced cooperation to meet both their increased energy needs and associated challenges, including those related to air pollution, energy security and GHG intensities. The Partnership focuses on the development and deployment of cleaner, more efficient technologies. For this purpose it enables business, government and researchers to work together and participate in task forces as equal partners.

The Partnership is an initiative combining sectoral cooperation across countries on the development and deployment of technologies with sectoral reforms in selected countries for removing barriers to achieving full potential to reduce GHG emissions and energy efficiency improvements. The former will benefit from the involvement of business whereas the latter will suit government-to-government actions (Connaughton, 2006).

[1] I am most grateful to a number of Partnership participants for contributing to background research, especially through interviews. I also benefited from discussions at the first meeting of the CEPS Task Force on sectoral industry approaches, Brussels, 18 September 2007. For more information on the APP and its activities see http://www.asiapacificpartnership.org/default.htm and Australia (2007).

[2] Montgomery & Tuladhar (2006) discuss how the Partnership can bring about institutional change.

3.2 Partner countries

The Asia-Pacific Partnership consists of seven partner countries—Australia, Canada, China, India, Japan, the Republic of Korea and the United States. The initial six partner countries, other than Canada, account for 45% of global GDP, 50% of GHG emissions and 48% of global energy use (Government of Australia, 2007), and they produce about 65% of the world's coal, 48% of the world's steel, 37% of the world's aluminium, and 61% of the world's cement.[3] New Zealand has been also exploring possibilities for participation in the Partnership.[4]

Other than their geographic location there is not much common feature among these countries. In fact they are characterised by high heterogeneity in national circumstances such as the stage of development, dependence on trade or foreign direct investment, resource endowments — above all energy mix — , GHG intensity and its emission trajectories, financial and administrative capacity, and the role of regulation or market in achieving policy objectives.

High heterogeneity in national circumstances at least partly explains the absence in the Partnership agenda of institutional issues. There are no common legally-binding rules or targets, not any institutions of its own but coordination with existing international institutions, not any resources — neither budget nor permanent secretariat — of its own but contributions from partners to individual projects, or not a common format of Task Force Action Plans but guidance. The Partnership is based on a highly decentralised structure largely relying on coordination of policies and projects along the line of the UNFCCC.

3.3 Task Forces, action plans & projects

Decentralisation is further strengthened by the structure of the Asia-Pacific Partnership. It is a public-private partnership on a regional scale, encouraging interaction of business, government and researchers from partner countries. In theory it sets up a dual structure of developing both policies and projects, respectively through the Policy Implementation Committee (PIC) (section 3.4) and sector-based Task Forces. In practice the former relies on the latter as the base for its strategic planning (Connaughton, 2006). For example, Renewable Energy and Distributed Generation Task Force analyses current policy or discuss effectiveness of exiting policy frameworks, and have peer review in each country in a frank and open way.

There are eight Task Forces focusing on specific key sectors to address clean development issues: three energy supply sectors (cleaner fossil energy, renewable energy and distributed generation, power generation and transmission); and five energy-intensive sectors (steel, aluminium, cement, coal mining, buildings and appliances) (see Appendix 1). There is divergence in organisation of market across sectors and across countries within the same sector. These Task Forces are designed to facilitate the development, diffusion, deployment, and transfer of cost-effective, cleaner, more efficient technologies and practices among the partners through concrete and substantial cooperation so as to achieve practical results. Each task force is led by Chair and Vice-chair from partner countries and represented by two government officials and two representatives of the private sector from each country.

These Task Forces respectively formulated Action Plans (Asia Pacific Partnership, 2006a) together with a portfolio of 110 projects ranging from technology development and deployment to information exchange and technical cooperation. While each Task Force considers any project involving at least two partners for inclusion in Action Plans, most Task Forces have developed projects involving all the initial six partner countries (see Appendix 1) despite considerable divergence in their national circumstances.

Most Task Forces put effort on exchange of information especially about best practice. Another important exercise is assessment of technology options and estimation of their potential to reduce GHG emissions. Steel Task Force identified the energy conservation technologies and estimated their potential — as a total of potential in the initial six partner countries — to reduce CO_2 emissions in light of progress in technology transfer

[3] http://www.asiapacificpartnership.org/default.htm
[4] Cabinet paper, "Asia Pacific Partnership on Clean Development and Climate" (http://www.mfe.govt.nz/issues/climate/resources/cabinet-papers/mfat-cab-paper.html); CBC Min 06 17/19 (http://www.mfe.govt.nz/issues/climate/resources/cabinet-papers/cbc-min-06-17-19.html).

(Government of Japan, 2007). Similarly both Aluminium and Power Generation and Transmission Task Forces assess different technology options to reduce emissions. Cement Task Force pursues in parallel technology transfer and estimation of total technological potential in the initial six partner countries. The latter then leads to the identification of barriers to achieving full potential, for which benchmarking can be used as one of the tools. A national benchmark does not necessarily mean best practice. For the benchmark falls as technology transfer makes progress. A work group in the Task Force reached a conclusion to use as agreed performance indicators a combination of the mandatory index of cement-based CO_2 emission intensity (net) using the CSI CO_2 protocol as a national benchmark, and a voluntary index of either the total energy intensity for clinker (net) or one that is originally expressed separately in the net thermal energy and electrical power intensity for clinker.[5] Such an exercise will continue together with an estimation of potential as well as identification of opportunities and barriers.

3.4 Policy Implementation Committee

The Policy Implementation Committee (PIC) sets the overall policy direction and outreach strategy for the Partnership while serving as the mechanism for introduction of new projects and participants in Partnership (Connaughton, 2006). The PIC is chaired by the US and represented by three senior government officials from each country. It coordinates work of Task Forces, and provides them with guidance while allowing them flexibility to develop projects and activities. It encourages them to take actions to manage implementation of Action Plans; to promote the Partnership and Action Plans to potential partners in projects and activities; to coordinate review and reporting of projects and activities in their Action Plans; to conduct strategic planning on future Partnership cooperation within the Task Force theme or sector; and to review new project proposals by partner countries (Asia Pacific Partnership, 2007a).

3.5 Finance

Australia has committed AUD 100 million (approximately US$75 million) funding over five years to support the Partnership activities. The funding has been allocated to eligible projects operating under Task Forces. Funding of a further AUD 50 million has been announced in September 2007 (Australia, 2007). According to the White House, the US has been able in the past fiscal year to contribute US$45 million in funds that support the projects and activities of the Partnership (Connaughton, 2007).[6] The modest level of initial funding is meant to be some kind of seed money that can mobilise investment from the private sector.

3.6 Prospects for wider membership

Given the initial reaction as described above, some participants have a positive view about the growing interest, from a technological perspective, on the part of non-partner countries in the Asia Pacific Partnership. On the other hand, however, there will be a number of challenges to wider membership. First, the advantage of limiting the number of members, which Kellow (2006) calls *mini-lateralism*, would be lost. A group of six has already turned out to be difficult enough to agree on issues such as data collection. Second, the Partnership has no built-in financial mechanism to reward a new member. Limited resources are allocated to specific projects as seed money. It is up to the business or government to capitalise the initial funding. Third and most importantly, it was not until 2006 that all the Task Forces managed to launch projects, which are still in progress and remain to deliver tangible benefits.

4. Comparison with the EU Energy and Climate Change Package

If the Asia-Pacific Partnership is an initiative for coordinating implementation of policies and projects, it can be compared with the EU Energy and Climate Change Package (EC, 2007a; see Appendix 2) rather than the Kyoto Protocol. Between the Partnership and the EU Package there is a common coverage of actions in the energy sector (e.g. cleaner fossil energy, renewable energy, power generation and transmission), and cross-cutting issues (e.g. R&D and energy efficiency).

[5] I am grateful to Dr.Y. Izumi from Taiheiyo Cement for an update of the Cement Task Force. Net means excluding alternative and biomass fuels.

[6] The White House proposed to contribute US$52 million for the next fiscal year (US 2007). I thank Prof. T. Brewer for his expertise in the US budgetary process.

The Partnership leaves cross-cutting issues to each Task Force (Connaughton, 2006). The EU Energy Package does not take a sectoral approach but addresses opportunities in specific sectors under prioritised themes. For example, EU actions for energy efficiency improvements cover appliances and buildings as well as heat and electricity generation, transmission and distribution. One important omission from the Asia-Pacific Partnership is transport.

5. Coordination with regional or global actions

Possibilities for coordinating the Asia Pacific Partnership with regional or global actions can be explored in both formal and informal aspects. In a formal aspect, having ratified the UNFCCC, all the partner countries of the Partnership participate in bilateral and multilateral technology partnerships (see Appendix 3; de Coninck et al., 2007). The Charter indeed states in the 'shared vision' that the Asia Pacific Partnership is built up on the foundation of existing bilateral and multilateral initiatives. Some of these initiatives not only involve emerging economies such as China and Republic of Korea but also the EU and its member states. This implies that actions in the Asia-Pacific region and the EU have been loosely coordinated through their membership in a web of bilateral and multilateral partnerships which are compatible with the UNFCCC objective. Indeed, it is stressed from a Chinese perspective that the Partnership can be only part of the technological solution and it alone cannot ensure the deployment of best available technologies in the marketplace or rolling-out of new technologies at the pace and on the scale needed (Zhang, 2006).

To overcome the limits as such, international financial institutions could play a role in supporting the Partnership. The IPC recently invited international financial institutions such as the World Bank, the International Finance Corporation, the Asia Development Bank, the Global Environment Facility and Japan Bank for International Cooperation to discuss how to boost investment in cleaner technology (Japan, 2007).

In an informal aspect, the Partnership could provide business and governments with opportunities to encourage sharing of data and knowledge, facilitate comparability of actions, and improve transparency. The Partnership has committed to development of tools for measuring progress such as benchmarking (e.g. Aluminium, Cement, Steel Task Forces), performance metrics or indicators (e.g. Power Generation and Transmission, Steel Task Forces) and economic, energy efficiency or environment indices (e.g. Renewable Energy and Distributed Generation, Steel Task Forces). Given its expertise in sectoral best practices, benchmarking and an energy efficiency indicator, the International Energy Agency is a natural mediator and has been recently invited to the IPC meeting for further cooperation especially with the Cement and Steel Task Forces (Japan, 2007).

Similarly the knowledge base for best practices (e.g. Power Generation and Transmission, Renewable Energy and Distributed Generation, Aluminium, Cement, Steel, Buildings and Appliances Task Forces) (Hendricks, 2007; FEPCO 2007) can be expanded or shared with an equivalent database developing elsewhere.

Lastly exchange of information about sectoral reforms for removing barriers to mitigation potential (e.g. Renewable Energy and Distributed Generation, Cement and Steel Task Forces) (Clean Technology AustralAsia, 2007; Thompson & Neuhoff, 2007) could be relevant to the UNFCCC Dialogue on Long-term Cooperative Action and the World Bank.

In summary the likely scenario would be, if successful, steady development of the Partnership, enhanced by coordination with other regional and global actions and by closer cooperation with international institutions and fora.

References

Anderson, J.W. (2006), *The Asia-Pacific Initiative: Better than Kyoto?*, A weathervine commentary, 1 February.

Andresen, S. (2006), "The Asia-Pacific Partnership: Political window dressing or alternative to Kyoto Protocol?", *Cicerone,* 1-2006.

Asia Pacific Partnership on Clean Development and Climate (2007a), "Further guidance to the Task Forces", 4 April.

Asia Pacific Partnership on Clean Development and Climate (2007b), Communiqué, Second Ministerial Meeting, New Delhi, 15 October.

Asia Pacific Partnership on Clean Development and Climate (2006a), Executive Summary of Task Force Action Plans, 31 October.

Asia Pacific Partnership on Clean Development and Climate (2006b), Aluminium Task Force Action Plan.

Asia Pacific Partnership on Clean Development and Climate (2006c), Cement Task Force Action Plan.

Asia Pacific Partnership on Clean Development and Climate (2006d), Power Generation and Transmission Task Force Action Plan.

Asia Pacific Partnership on Clean Development and Climate (2006e), Renewable Energy and Distributed Generation Task Force Action Plan.

Asia Pacific Partnership on Clean Development and Climate (2006f), Steel Task Force Action Plan.

Cleantechnology AustralAsia (2007), "Pursuing clean energy business in India", background paper prepared for the Asia-Pacific Partnership on Clean Development and Climate, June.

Connaughton, J.L. (2006), Testimony of James L. Connaughton, Chairman, Council on Environmental Quality, Executive Office of the President, before the United States Senate, Committee on Environment and Public Works, 20 September.

Connaughton, J. (2007), New Delhi Ministerial U.S. Country Statement, Second Ministerial Meeting, New Delhi, 15 October.

De Coninck. H.C. et al. (2007), "International technology-oriented agreements to address climate change", ECN-E—07-002, ECN and Resources for the Future, January.

Doniger, D.D. (2006), Testimony of David D. Doniger, Policy Director, Climate Center, Natural Resources Defense Council, Hearing on the Asia Pacific Partnership, Committee on Environment and Public Works, United States Senate, 20 September.

European Commission (2007a), An energy policy for Europe, Communication from the Commission to the European Council and the European Parliament, COM(2007)1 final, 10 January.

European Commission (2007b), Towards a European Strategic Energy Technology Plan, Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions, COM(2006)847 final, 10 January.

Federation of Electric Power Companies, Report of the Asia-Pacific Partnership "Peer Review Activity" in Japan co-hosted by the Ministry of Economy, Trade and Industry of Japan and the Federation of Electric Power Companies, 16-19 April'. http://www.fepc.or.jp/english/env/app/

Government of Australia (2007), "Asia-Pacific Partnership on Clean Development and Climate: Partnership for action", second edition.

Government of Japan, 2007, 'The 4th Policy Implementation Committee, Asia Pacific Partnership on Clean Development and Climate' (in Japanese), 20 July.

Hendricks, J. (2007), "The Asia-Pacific Partnership: an innovative effort to accelerate the development and deployment of clean energy technologies", *Electric Perspectives,* January/February.

Jeffords, J. (2006), Statement of Senator Jim Jeffords, I-Vt. Environment and Public Works Committee, Hearing on Asia Pacific Partnership, 20 September.

Kanie, N. (2007), "Towards distributive climate change governance: A way forward beyond 2012", paper submitted to 2007 Amsterdam Conference on Human Dimensions of Global Environmental Change, 24-26 May.

Kellow, A. (2006), Transcript of Proceedings, 31 March 2006, pp.49-53, Parliament of Australia, Joint Standing Committee on Treaties, *Treaty Scrutiny: A ten year review*, report tabled on 9 October.

Lieberman, J.I. (2006), Statement of Joseph I. Lieberman, Hearing on examining approaches embodied in the Asia Pacific Partnership, 20 September.

McGee, J. and R. Taplin(2006), "The Asia-Pacific partnership on clean development and climate: A complement or competitor to the Kyoto Protocol?", *Global Change, Peace and Security,* Vol. 18, No. 3, 173-192.

Montgomery, W.D. and S.D. Tuladhar (2006), "The Asia Pacific Partnership: Its role in promoting a positive climate for investment, economic growth and greenhouse gas reductions", 28 June.

Sherrard, J. et al. (2006), "First progress report on the Asia-Pacific Partnership on Clean Development and Climate", April.

Skodvin, T. and S. Andresen (2007), "The Asia-Pacific Partnership on Clean Development and Climate: Supplement or Alternative to the Kyoto Protocol?", paper presented at the 48th Annual Convention of the International Studies Association, Chicago, 28 February-3 March.

Thompson, G.M. and J.O. Neuhoff (2007), "Joining forces – Asia-Pacific partnership offers new opportunities for distributed generation", *Cogeneration and On-Site Power Production,* May.

US Executive Office of the President (2007), Federal climate change expenditures report to Congress, May.

Zhang, Haibin (2006), "China's position in international climate change negotiations: Continuities and changes", *Journal of International Peace,* Vol. 3, No. 2, The Seoul Peace Prize Cultural Foundation, December.

Zhang, Z.X. (2006), "China, the United States and technology cooperation on climate control", SSRN, August (http://ssrn.com/abstract=953292).

Appendix 1

Task Forces of the Asia-Pacific Partnership on Clean Development & Climate[7]

Cleaner Fossil Energy Task Force

The Task Force identified a range of key advanced coal and gas technologies that can significantly reduce greenhouse gas emissions, air-borne pollutants and other environmental impacts. Such technologies include Integrated Gasification Combined Cycle (IGCC) producing hydrogen from coal, Ultra-Supercritical Coal, and use of carbon dioxide (CO_2) capture and storage. The Task Force is working to share best practices, eliminate market barriers to the deployment of these technologies, and increase the utilization and efficiency of cleaner fossil energy. Australia currently serves the Chair. The Co-Chair is China.

Renewable Energy and Distributed Generation Task Force

The Task Force is working to promote not only renewable energy technologies such as hydro, solar, geothermal and wind, but also distributed generation. To promote these objectives the Task Force will strive to identify barriers to technology transfer and financing associated with deployment of renewable and distributed generation technologies focusing on cost-competitive technologies with both on- and off-grid applications. Republic of Korea currently serves the Chair. The Co-Chair is Australia (Asia Pacific Partnership 2006e; Thompson and Neuhoff 2007).

Power Generation and Transmission Task Force

The Task Force is working to bring efficiency gains to all partners through their activities. It proposed activities organized along Best Practices for Power Generation, Best Practices for Transmission and Distribution, Best Practices for Demand Side Management, and Information Sharing. United States of America currently serves the Chair. The Co-Chair is China (Asia Pacific Partnership 2006d).

Aluminium Task Force

Partners will promote best practice performance, increase technical support, and identify impediments to deployment of best available and affordable technology. The partner countries' aluminium associations agreed to a memorandum of understanding (MOU) in May 2006 including a commitment to enhance the GHG performance of aluminium production processes and to enhance existing cooperative arrangements across the sector. Australia currently serves the Chair. The Co-Chair is United States of America (Asia Pacific Partnership 2006b).

Buildings and Appliances Task Force

By addressing power demand in appliances, office and consumer electronics, and lighting as well as building design and operations, the Task Force strives to significantly improve energy efficiency especially in the residential and commercial sectors. This will lead to economic benefits and defer investment in energy supply. Republic of Korea currently serves the Chair. Co-Chair is United States of America.

Cement Task Force

The Task Force is working to achieve its long-term goals to reduce CO_2 emissions, conserve energy through sharing information on clean energy technologies, and cooperating further to diffuse such technologies. Japan currently serves the Chair (Asia Pacific Partnership 2006c).

Coal Mining Task Force

The Task Force is working to improve coal mining and beneficiation efficiency, reduce coal's environmental impacts, and improve coal mining's safety record. This includes promoting best available technologies and practices in coal preparation, coal mine methane capture and improved mine health and safety. United States of America currently serves the Chair. The Co-Chair is India.

[7] For overview of task force activities see Asia Pacific Partnership (2006a).

Steel Task Force

The Task Force is working to identify technologies to reduce the emissions and energy consumption of the global steel sector. Japan currently serves the Chair. The Co-Chair is India (Asia Pacific Partnership 2006f).

Projects

Projects involving all the initial six partners include:

- Cleaner Fossil Energy TF: assessing post-combustion capture for coal-fired power stations in partner countries; CO_2 carbon capture and storage programme; Asia-Pacific gas market growth
- Renewable Energy and Distributed Generation TF: high efficiency solar power stations for affordable energy; identifying optimal legal frameworks for renewable energy in China and India
- Power Generation and Transmission TF: best practice in power generation; energy regulatory and market development forum
- Buildings and Appliances TF: harmonisation of appliance testing procedures; high performance buildings and developments; enhancement of building energy codes; energy efficiency; utility regulation and incentives; alignment of national standby power approaches
- Cement TF: Status report and benchmarking; cement centre of excellence
- Coal Mining TF: leading practice sustainable development programme for the mining industry; coal mine safety strategy
- Steel TF: annual steel experts workshop

Appendix 2

EU Energy & Climate Change Package [8]

The European Commission has proposed a comprehensive package of measures to combat climate change and boost the EU's energy security and competitiveness. The package sets a series of ambitious targets on greenhouse gas emissions and renewable energy and aim to create a true internal market for energy and strengthen effective regulation. The key elements of the package include:

Strategic objectives

- An EU objective in international negotiations of 30% reduction in GHG emissions by developed countries by 2020 compared to 1990. In addition 2050 global GHG emissions must be reduced by up to 50% compared to 1990, implying reductions in industrialised countries of 60-80% by 2050.
- An EU commitment to achieve at least a 20% reduction in GHG emissions by 2020 compared to 1990.

A European Strategic Energy Technology Plan (SET-Plan)

The SET-Plan (2007b) will present a long-term vision of how the energy technology landscape could evolve:

- By 2020 technologies will have to make the 20% renewable target a reality by permitting a sharp increase in the share of lower cost renewables;
- By 2030 electricity and heat will increasingly need to be produced from low carbon sources and extensive near-zero emission fossil fuel power plants with CO_2 capture and storage. Transport will need to increasingly adapt to using second generation biofuels and hydrogen fuel cells.
- For 2050 and beyond, the switch to low carbon in the European energy system should be completed with an overall European energy mix that could include large shares for renewables, sustainable coal and gas, sustainable hydrogen, and, for those member states that want, Generation IV fission power and fusion energy.

The Commission will propose a first SET-Plan by the end of 2007 for endorsement by the 2008 Spring European Council.

Sectoral objectives

- More energy efficient buildings, appliances, equipment, industrial processes and transport systems;
- Developing biofuels, in particular second generation biofuels, to become fully competitive alternatives to hydrocarbons;
- Getting large scale offshore wind competitive within the short term and paving the way towards a competitive European offshore supergrid;
- Getting photovoltaic electricity competitive to harness solar energy;
- Using full cell and hydrogen technologies to exploit their benefits in decentralised generation and transport;
- Sustainable coal and gas technologies, particularly carbon capture and storage;
- Leading in fourth generation fission nuclear reactors and future fusion technology to boost the competitiveness, safety and security of nuclear electricity, as well as reduce the level of waste.

Sectoral targets

- A target of 10% minimum interconnection levels
- A binding target of 20% of its overall energy mix will be sourced from renewable energy by 2020
- A minimum target for biofuels of 10%
- An increase in its annual spending on energy research for the next seven years by at least 50%
- Saving 20% of total primary energy consumption by 2020
- Construction of 12 large-scale demonstration plants in Europe by 2015

[8] Press release, European Commission, 'Commission proposes an integrated energy and climate change package to cut emissions for the 21st Century', 10 January 2007; European Commission (2007a).

Appendix 3

Major global partnerships on energy and climate change

Table 1: Major multilateral global partnerships on energy and climate change

Partnerships	Description
Global Gas Flaring Reduction (GGFR), (2002-)	The GGFR is the World Bank-led initiative launched at the *2002 World Summit on Sustainable Development (WSSD)*. It is a *public-private partnership* that facilitates and supports national efforts to use currently flared gas by promoting effective regulatory frameworks and tackling the constraints on gas utilization. Poverty reduction is also an integral part of the programme.
Partnership for Clean Fuels and Vehicles (PCFV)(2002-)	The PCFV was also launched at the *2002 WSSD* as a *public-private partnership*. It will help reduce vehicular air pollution in developing countries through the promotion of clean fuels and vehicles, and will focus initially on the elimination of lead in gasoline and the phase down of sulphur in diesel and gasoline fuels concurrent with the adoption of cleaner vehicle technologies.
The Johannesburg Renewable Energy Coalition (JREC) (2002-)	The JREC was launched following the Johannesburg Plan of Implementation agreed at the *2002 WSSD*. Ministers and senior officials identified a large range of policy objectives that can be addressed through increased renewable energy policies and measures including objectives related to environment, energy, and development.
Carbon Sequestration Leadership Forum (CSLF), (2003-)	The CSLF focuses on development of improved cost-effective technologies for the separation and capture of CO2 for its transport and long-term safe storage. Its purpose is to make these technologies broadly available internationally and to identify and address wider issues relating to carbon capture and storage.
International Partnership for the Hydrogen Economy (IPHE), (2003-)	The IPHE aims to accelerate the transition to a hydrogen economy. It serves as a mechanism to organize and improvement effective, efficient and focused international research, development, demonstration and commercial utilization activities related to hydrogen and fuel cell technologies.
Methane to Markets Partnership, (2004-)	The Partnership is an initiative that advances cost-effective, near-term methane recovery and use as a clean energy source. Its goal is to reduce global methane emissions in order to enhance economic growth, strengthen energy security, improve air quality, improve industrial safety, and reduce GHG emissions.
FutureGen, (2005-)	FutureGen is a *public-private partnership* to build a first-of-its-kind coal-fuelled, near-zero emissions power plant.
Renewable Energy and Energy Efficiency Partnership (REEEP)(2004-)	The REEEP was conceived at the *2002 WSSD* and established in 2004. It is a *public-private partnership* that structures policy and regulatory initiatives for clean energy and facilitates financing for energy projects. Its aim is to accelerate the integration of renewables into the energy mix and to advocate energy efficiency as a path to improved energy security and reduced carbon emissions, ensuring socio-economic benefits.
Generation-IV International Forum (GIF)	Countries work together to lay the groundwork for the 4th generation nuclear reactor, Generation IV.
Global Nuclear Energy Partnership (GNEP)	GNEP was first announced in 2006. GNEP seeks to develop worldwide consensus on enabling expanded use of clean, safe and affordable nuclear energy to meet growing electricity demand. It proposes a nuclear fuel cycle that enhances energy security.

Sources: http://www.cslforum.org/; http://www.methanetomarkets.org/; http://www.iphe.net/; http://www.worldbank.org/; http://www.futuregenalliance.org/about.stm; http://www.reeep.org/; http://www.unep.org/pcfv/; http://ec.europa.eu/environment/jrec/index_en.htm; http ://gif.inel.gov/; http ://www.gnep.gov/

Table 2. Major bilateral global partnerships on energy and climate change

Partnership	Description
US Fossil Energy Bilateral Agreements	The formats and goals are set bilaterally.
US ENERGY STAR agreements	There are international agreements to promote certain ENERGY STAR qualified products. They aim to unify voluntary energy-efficiency labelling programmes in major global markets and make it easier for partners to participate by providing a single set of energy-efficiency qualifications.
International Nuclear Energy Research Initiative (I-NERI)	The I-NERI is a US programme designed to foster collaborative research and development with international partners in advanced nuclear energy systems. It has implemented bilateral collaborative agreements.
EU bilateral cooperation initiatives	The formats and goals are set bilaterally.

Sources: http://www.fossil.energy.gov/international/International_Partners/International_Partners.html http://www.energystar.gov/index.cfm?c=partners.intl_implementation; http://www.energetics.com/ineri_client/index.aspx; http://ec.europa.eu/dgs/energy_transport/international/index_en.htm

Table 3: Multilateral global partnerships and their main participants

	APP Au	APP Ca	APP Ch	APP In	APP Ja	APP Ko	APP US	EU Fr	EU Ge	EU It	EU UK	EU
GGFR		○					○	○			○	○
PCFV	●	●	●			●						
JREC								●	●	●	●	●
CSLF	●	●	●	●	●	●	●	●	●	●	●	●
IPHE	●	●	●	●	●	●	●	●	●	●	●	●
MMP	●	●	●	●	●	●	●		●	●	●	
REEEP	○	○			●	●	○	●	○	○	○	○
GIF		●			●	●	●	●			●	
GNEP	●		●		●		●	●			◘	

Legend: ○: member and donor; ●: member; ◘: observer
Note: EU is a donor to GGFR, and led the launch of JREC. European Commission is a member of CSLF, IPHE, and REEEP. EURATOM is a member of GIF.

Table 4: Bilateral global partnerships and their main participants

	Au	Ca	Ch	In	Ja	Ko	US	Fr	Ge	It	UK	EU
Fossil Fuel	●	●	●[9]	●[10]			○			●	●	
ENERGY STAR	●	●			●		○					●
I-NERI		●			●	●	○	●				
Cooperation			●[11]	●[12]			●					○

Legend: ○: host country; ●: its partners.

[9] A bilateral Fossil Energy Protocol has been extended to 2010. There is a public-private partnership, US-China Oil and Gas Industry Forum.
[10] A US-India Energy Dialogue was launched in May 2005.
[11] EU-China Partnership on Climate Change was agreed in September 2005.
[12] EU-India Initiative on Clean Development and Climate Change was agreed in September 2005.