G8 Research Group Oxford

G8 Commitment Interpretive Guidelines 2006-07

Oxford, March 2007

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Contents

General Comments for Analysts

This document is designed to give your research direction. Please keep the following points in mind when researching all commitments:

1. **Evaluative scale**: The *actual impact* of a country's new project or initiative is important. To assign a score of +1 (as opposed to 0) for the implementation of a given commitment, the government's measures need to have been "significant" (full) as opposed to "some" (partial). These judgments are made relative to each country's current policy position: i.e. what is "significant" progress for one country would not necessary count as significant for another, given their current levels of CO2 emissions and other factors.
2. **Sources**: While government sources are an important indicator of engagement with this issue-area, it is essential to cross-reference them with independent media, international organizations, and civil society sources in order to ensure an accurate assessment of the impact of the announced policy changes/new measures.
3. **Timeline**: To count as compliance, any policy initiatives or changes need to have been announced or enacted between the St. Petersburg Summit (July 2006) to January 2007. However, the degree to which any such policies need to be *operationalized* (i.e. not merely proposed, but also implemented) depends on the type of policy: for example, a long-term strategy need not be entirely fulfilled in order to count as compliance.
4. **Commitment scope**: As described in detail below, the five commitments may have been interpreted in this Report in a more specific or limited manner than a simple reading of the Communiqué text might suggest. This delimitation was used to avoid the problem of double counting, whereby a country might get credit in two commitments for undertaking the same action.
5. **Compliance indicators:** The list of examples, definitions, and suggestions included in this document about what government actions might constitute compliance with any given commitment is not exhaustive. It should be treated as guidance only.

1. Clean & Efficient Energy in the Transport Sector [116]:

> *[For making transportation more energy efficient and environmentally advanced we shall…]* "develop programs in our respective countries, consistent with national circumstances, to (1) provide incentives for consumers to adopt efficient vehicles, including clean diesels and hybrids; and (2) introduce on a large scale efficient public hybrid and/or clean diesel transportation systems, where appropriate;…" [1]

Commitment Features

In order to meet full compliance, G8 members must meet the two criteria set out in the commitment: a) Consumer incentive programs for the adoption of efficient vehicles must be implemented, AND b) Large-scale public transportation systems on hybrid and/or clean diesel must be introduced. (The large-scale expansion of existing transport systems based on these technologies will count as compliance.)

Background Information

With over 60% of the world's energy being used in personal and public transportation, this sector is quickly becoming the focus of global efforts to mitigate climate change. The UNFCCC lists sustainable development, air quality management, and energy security in the transport sector as one of the major objectives of climate change policies in Annex 1 countries.[2] A "greener" ground transport sector could include efficient and less polluting forms of public and freight transport, non-motorized transport, vehicles operated by fuel-cell or battery, internal combustion engine-electric hybrid buses and advanced technologies for converting biomass feedstock into liquid fuels.

At St. Petersburg, the G8 reaffirmed it's commitment to addressing energy concerns by concentrating efforts on the improvement of energy consumption, and the types of energy consumed, in surface transportation. Specific commitments to that end include the development of various incentives and infrastructural changes to surface transportation at the state level to encourage cleaner fuel usage and research and development. Fuel types being promoted include biofuels, compressed and liquefied natural gas, liquefied petroleum gas and synthetic liquid fuels, and hydrogen. In addition to fuel diversification, the G8 is committed to the promotion of the development of more efficient engines, requiring thereby requiring less fuel. At the intrastate level, members are committed to sharing the best such practices with other members.

Compliance with commitments to surface transportation made at St. Petersburg will be determined based on concerted efforts by the federal governments' to improve energy efficiency and promote the use of 'energy friendly' methods of transportation. Analysts will consult the G8RG Gleneagles Compliance Report[3] on surface transportation and will look for continuity in government positions and the maintenance of existing programs, since most countries registered a high level of compliance on a similar commitment. Further, analysts will research initiatives from national ministries of industry, transportation, environment, finance, and public works, searching for incentives such as tax reductions and credits, research grants, infrastructure projects, and to a lesser degree public statements pronouncing not only concern but action. Analysts will be aware of the distinction between actions taken at the state level, which is considered in compliance, and actions at sub-state levels, which are not counted towards state compliance.

Scoring

-1 Member introduces no new consumer incentive schemes **AND** does not introduce new and/or expand existing hybrid and clean diesel public transport systems.

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[1] See St. Petersburg Plan of Action Global Energy Security, III. Enhancing Energy Efficiency and Energy Saving. The Interpretive Guidelines for this particular commitment draw on the G8RG-Toronto's own guidelines.

[2] Environmentally sustainable transport was added as an "Operational Program" (OP) 11 in 1999 to promote a shift towards sustainable transport (Note: OPs are long-term frameworks under the UNFCCC for the design, implementation, and coordination of a set of projects, which are specific to each focal area). See UNFCCC Handbook at http://unfccc.int/essential_background/background_publications_htmlpdf/items/2625.php.

[3] G8RG 2006 Gleneagles Final Compliance Report: Surface Transportation (at http://www.g8.utoronto.ca/evaluations/2005compliance_final/2005-22-g8-f-comp_transport.pdf).

0 Member introduces new consumer incentive schemes **OR** introduces new and/or expand existing hybrid and clean diesel public transport systems **OR** it announces either element, but does not operationalize the commitment during the commitment period.

+1 Member successfully introduces new consumer incentive schemes **AND** introduces new and/or expands existing hybrid and clean diesel public transport systems.

2. Alternative and Renewable Energy [123]:[4]

> *123. [Diversification of the energy mix reduces global energy security risks.*] We will work to develop[5] (1) (a) low-carbon* and (b) alternative energy, to make wider use of (2) renewables and to develop and introduce (3) innovative technologies throughout the entire energy sector.[6]

Background Information

Development and promotion of alternative and renewable energy has become a priority issue in recent times, both in the context of the G8 and beyond.[7] The rising cost of conventional energy sources, coupled with a growing concern about their adverse environmental impact, has significantly helped the cause of renewable energy. Not surprisingly, diversification of the global energy mix featured as a major theme at the St. Petersburg Summit, where the participating states endorsed a Plan of Action on Global Energy Security and welcomed the work of international mechanisms and programs dealing with renewable energy, including the Renewable Energy and Energy Efficiency Program (REEEP), the Renewable Energy Policy Network for the 21st Century (REN21), and the Mediterranean Renewable Energy Partnership (MEDREP).

Commitment Features

Scope: This is a ***supply-side* commitment**: i.e. we are assessing measures aimed at diversifying energy production with environmentally sound alternatives.

(*) Limits: Despite the reference to (a) "low-carbon" energy, in analyzing Commitment 2, we will focus on alternative and renewable sources of energy. Low-carbon initiatives are discussed in Commitment 5 (in order to avoid overlap and double-counting). Therefore, carbon-based fuels are expressly *excluded* from examination in this commitment.

Definitions:

- "Alternative energy" includes, *inter alia*, financial or political support for the development of common international standards in the field of commercial development of hydrogen power, infrastructure, and security requirements (§26). Corn ethanol and biofuels (excluding those used for surface transportation) are included.
- "Renewable" energy sources include*, inter alia,* solar, wind, hydro (wave/tidal, etc.), biomass, and geothermal energy resources. Nuclear energy is excluded.
- "New innovative technologies" might refer to e.g. advanced electricity networks, superconductivity, or nanotechnology, including nano-biotech.
- Our definition of "alternative" and "renewable" energy for the purposes of the Compliance Report is not limited to various examples quoted in the St. Petersburg Communiqué. Please feel free to include additional examples of environmentally friendly diversification strategies – but please note that the focus of this commitment is not nuclear energy (which is covered elsewhere in the Communiqué).

Actors: The focus of this commitment is on government initiatives, with or without private sector partnerships.

Evidence: Examples of specific government policies that might signal compliance with the commitment include evidence of (a) financial support for renewable/alternative energy sources; (b) financial or political

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[4] See St. Petersburg Plan of Action Global Energy Security, Section IV. Diversifying Energy Mix of the […]. There are a number of other references to diversification throughout the Summit document (e.g. see §33 as an example of what specifically to look for when discussing renewables).

[5] "Development" refers to research funding and support as well (i.e. both R&D).

[6] The "entire energy sector" includes the supply-side sub-sectors, such as energy production facilities, transmission grids, extraction, transportation (excluding personal-use ground transport covered in commitment), etc. The IPCC definition may be helpful: see http://www.google.com/search?client=safari&rls=en&q=IPCC+code+1+energy+industries&ie=UTF-8&oe=UTF-8.

[7] At the European business leaders' convention, Finnish Prime Minister Matti Vanhanen welcomed the implementation of the energy community treaty and stressed the importance of diversification of global energy sources for sustainable development. See Keynote speech at St. Petersburg, 7 July 2006, available at http://www.g8.utoronto.ca/summit/2006stpetersburg/vanhanen060707.html.

support for the development of common international standards in the field of commercial development of renewable/alternative energy sources and infrastructure; (c) financial or political support for fostering the use of renewable energy in developing countries. The latter clause should be *supplemental* to domestic programs and is not a substitute.

Scoring

-1 Member introduces no new policy or program to develop low-carbon or alternative energy[8] **AND** introduces no new policy or program to make wider use of renewables[9] **AND** does not develop nor introduce new innovative technologies.[10]

0 Member takes some steps to introduce new policy or program to develop alternative energy **AND** to make wider use of renewables **AND** to develop or introduce new innovative technologies.

+1 Member takes significant measures to introduce new policy or program to develop alternative energy **AND** to make wider use of renewables **AND** to develop or introduce new innovative technologies.

[8] "Alternative energy" includes, *inter alia*, financial or political support for the development of common international standards in the field of commercial development of hydrogen power, infrastructure, and security requirements (para. 26).
[9] "Renewable" energy sources include*, inter alia,* solar, wind, hydro (wave/tidal, etc.), biomass, and geothermal energy resources. Nuclear energy is excluded.
[10] "New innovative technologies" might refer to e.g. advanced electricity networks, superconductivity, nanotechnology, including nanobiotech.

3. UNFCCC/Kyoto [53]:

> 53. […*We are undertaking a number of approaches to deal with the interrelated challenges of energy security, air pollution control, and reducing greenhouse gas associated with long-term global climate change*.] With respect to climate change, we reaffirm our shared commitment under the (1) UNFCCC and its (2) related mechanisms.[11]

Note: Analysts should read this commitment in the context of §53 as a whole. You will notice that some sections are more specific to Kyoto, others more to the UNFCCC. This segment of the text was chosen because it has implications for *all* of the G13 states, not just the G8 or the Kyoto parties. When considering these guidelines, please keep in mind the disparate treaty obligations for the signatories.

Background Information

Recognizing the rapid and devastating effects of climate change, the UN Framework Convention on Climate Change (UNFCCC) came into force on 21 March 1994 as a treaty enabling cooperation among states to reverse global warming. Its membership in 2007 included 189 countries. The Kyoto Protocol is an optional supplement to the UNFCCC which entered into force on 16 February 2005. The Kyoto Protocol strengthens the overarching UNFCCC framework by imposing additional legally binding obligations on its signatory states to reduce their greenhouse gas (GHG) emissions; the parties to the Protocol are listed in "Annex 1" of the UNFCCC. While the individual reduction targets in GHG emissions vary from state to state, they include at least a 5% decrease from the 1990 levels in the commitment period 2008-2012. Kyoto foresees periodic review, as well as such innovative mechanisms as Joint Implementation (JI) and Clean Development Mechanism (CDM) and emissions trading schemes. Non-signatories to Kyoto, mainly developing nations, are referred to as non-Annex 1 parties.

Commitment Features

- **Separate legal frameworks & Implications:** Given the different commitments made by the countries that have agreed to Kyoto (the G8, minus the US) and those who have accepted the UNFCC (the Plus Five and the US), this commitment must be interpreted differently depending on the country. The Kyoto signatories are to be held to a high standard.
- **UNFCCC obligations:** Under the UNFCCC, the countries must strengthen or expand policies and programs that support the shared commitments of the UNFCCC. These are: (a) to gather and share information on greenhouse gas emissions, national policies and best practices, (b) to launch national strategies for addressing greenhouse gas emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries, (c) to cooperate in preparing for adaptation to the impacts of climate change.[12]
- Other secondary commitments which could be examined include conservation and sustainable management of carbon sinks (i.e. forested areas), as well as promotion of educational and public awareness-raising programs on climate change.
- Analysts should focus on domestic emissions reductions as a means of analyzing this commitment. Domestic elements should be a "significant element" of reduction strategies. As per the Marrakech Accords, the two flexible mechanisms (i.e. the Joint Initiative (JI) and the Clean Development Mechanisms (CDM)) should not replace domestic action, but only be considered a "supplement" to it.[13]
- (**) When addressing the '*significance'* of domestic reductions under the Marrakech Accords, the scoring is left to the analyst's discretion based on multiple sources assessing a government's

[11] See section VII. "Addressing Climate Change and Sustainable Development" in the Communiqué.
[12] See UNFCCC treaty site, at http://unfccc.int/essential_background/convention/items/2627.php.
[13] "Annex I Parties must demonstrate in their national communications that their use of the mechanisms is "supplemental to domestic action" and constitutes "a significant element" of their efforts to achieve their targets." (See http://unfccc.int/kyoto_protocol/mechanisms/items/1673.php).

emissions reductions strategy. However, if the G8/G13 member is pursuing reductions incentives *solely* through the JI or CDM, this is clearly inadequate.

- ♣ There have been disagreements about what constitutes a 'significant element' with Annex 1 Parties opposing any definition. The only helpful reference states that: "The Marrakesh Accords recognize that domestic action in Annex I countries should be 'conducive to narrowing per capita differences' in emissions between developed and developing countries.[14]

Plus 5: For the Plus 5, developing countries are not expected to provide technological and financial support to other developing countries but maximize progress under the UNFCCC within their domestic jurisdiction.

G8: For the G8 members that are also parties to the Kyoto Protocol, compliance with the UNFCCC cannot compensate for lack of progress under Kyoto: i.e. when scoring the extent of their compliance, please note their *reduction obligations* first, and then assess their measures aimed at mitigation and adaptation etc. under the UNFCCC.

Scoring

For G8 Countries (minus the United States)

-1 Member fails to meet or exceed greenhouse gas emissions reduction targets (re-) committed to at Gleneagles **AND** does not introduce new nor strengthen existing policies and programs that support at least one of the shared commitments[15] under the UNFCCC.

0 Member implements some measures toward meeting or exceeding its greenhouse gas emissions reduction targets (re-)committed to at Gleneagles with domestic action being a "significant element" of reduction strategies.[16] Member also takes some steps to introduce new or strengthen existing policies and programs that support the principal shared commitments under the UNFCCC.[17]

+1 Member meets or exceeds greenhouse gas emissions reduction targets (re-) committed to at Gleneagles with domestic action being a "significant element"** of reduction strategies **AND** makes significant steps to introduce new or strengthen existing policies and programs that support the principal shared commitments under the UNFCCC.

For "Plus 5" Countries and the United States

-1 Member does not introduce new nor strengthen existing policies and programs that support at least one of the shared commitments[18] under the UNFCCC.

0 Member takes some measures to introduce new or strengthen existing policies and programs that support the principal shared commitments under the UNFCCC

+1 Member makes significant steps to introduce new or strengthen existing policies and programs that support all of the shared commitments under the UNFCCC.

[14] See http://static.teriin.org/climate/cop7.htm
[15] As per the UNFCCC, the three principal shared commitments are (a) gather and share information on greenhouse gas emissions, national policies and best practices, (b) launch national strategies for addressing greenhouse gas emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries, (c) cooperate in preparing for adaptation to the impacts of climate change (http://unfccc.int/essential_background/convention/items/2627.php).
[16] As per the Marrakesh Accords, the flexible mechanisms should not replace domestic action, but only be considered a "supplement" to it (http://unfccc.int/kyoto_protocol/mechanisms/items/1673.php).
[17] This includes policies and programs to strengthen the Clean Development Mechanism or the Joint Implementation Mechanism.
[18] See fn8.

4. Sustainable Use of Energy [62]:

62. [*Recognizing the shared interest of energy producing and consuming countries in promoting global energy security, we, the Leaders of the G8, commit to…*] environmentally sound (1) (a) development and (b) use of energy, and (2) (a) deployment and (b) transfer of clean energy technologies which help to tackle climate change; … .[19]

Background Information

Access to energy is central to achieving national development goals. Yet securing *sustainable* development over the longer term requires a different set of strategies for the development, production, and consumption of energy resources. In recent times, sustainability is increasingly including efforts to tackle the problem of climate change in all stages of energy use—from improving access to energy resources, infrastructure, and efficiency to diversifying those same sources and minimizing environmental impact without stifling economic development.

At St. Petersburg, the G8 nations recognized the importance of integrating environmental considerations into their standing agenda item of promoting global energy security while, at the same time, addressing climate change.

Commitment Features

Limits: This commitment had to be significantly re-defined and narrowed down in order to reduce overlap with Commitments 2 and 5.

Scope: The focus of Commitment 4 is interpreted as the ***demand–side*** of the energy sector (energy use/consumption).

Research questions:

1) What measures is the government taking to create an *enabling environment* for households / consumers to expand the demand for energy-efficient products or products that cut energy use on the micro-level?

   Measures could include subsidizing green products to reduce prices, and raise public awareness of green products in order to increase consumer demand. The goal is to educate consumers about the benefits of green products, and make eco-efficient products more affordable and more easily accessible to enable consumers to make energy-efficient choices.

2) What measures is the government taking to create an *enabling environment* for industry to become more energy-efficient at the macro-level?

   This would include fiscal measures that result in real shifts in the tax base away from taxing income to taxing pollution. Apart from fiscal policy, measures here could include government initiatives targeting energy use in particular industrial sectors (apart from transportation).

Evidence: Thus redefined, the commitment could deal with increasing minimum standards for appliances and increasing energy efficiency on the demand-side; small-scale, community, and household initiatives (e.g. incentives, tax-breaks etc. for solar panel installation; insulation materials; subsidies etc.): e.g. (a) for energy intensive products, provide financial support for the development, extension and deployment of best practice energy efficiency labeling programs, and increase efforts to adopt the most stringent energy efficiency standards that are technically feasible and economically justified, (b) introduce new or strengthen existing financial and tax incentives at home for the promotion of energy-efficient technologies, and the actual use of those available technologies on a wide-scale basis, (c) incorporating energy efficient technologies and practices in government buildings and drawing upon alternative energy

[19] See "Statement on Global Energy Security Principles." Note: §8 and §17, among others, might give you a few examples of what specific policies this commitment might entail.

resources to help power then, OR (d) introduce new or strengthen existing programs that raise public awareness about the importance and benefits of energy efficiency and energy saving.[20]

This commitment should cover "eco-taxation" more generally, not just vouchers or tax exemptions for energy-intensive products, e.g. tax exemption on hybrid cars. It should assess real macro-shifts in the taxing system towards a green tax policy that punishes polluting activities and rewards green behavior. This would include removing subsidies and increasing taxation of polluting activities.

Notes on double-counting:

Please steer away from the transportation sector, as it is covered in Commitment no. 1, and focus instead on examples a) through d) (noted above).

The 'technology transfer' element of this commitment should refer primarily to transfer within the *domestic* arena, given that the responsibility for transfer from developed to developing countries is covered in Commitment 3.

Reference documents (Examples of measures that governments could implement):

- ♣ IEA - http://www.iea.org/textbase/papers/2006/g8brochureStPet.pdf
- ♣ IAEA - http://www-pub.iaea.org/MTCD/publications/PDF/Pub1222_web.pdf, especially table 3.1.

Scoring

-1 Member does not introduce new nor strengthen existing policies and programs that promote sustainable development and use of energy through demand-side reductions **AND**[21] fails to report on progress in meeting national target for reducing energy intensity of economic development by the end of 2006.[22]

0 Member takes some steps to introduce new or strengthen existing policies and programs that promote sustainable development and use of energy through demand-side reductions **AND** reports on progress in meeting national target for reducing energy intensity of economic development by the end of 2006.

+1 Member takes significant steps to introduce new or strengthen existing policies and programs that promote sustainable development and use of energy through demand-side reductions **AND** reports on progress in meeting national target for reducing energy intensity of economic development by the end of 2006.

[20] Communiqué, §17.
[21] Ex., (a) for energy intensive products, provide financial support for the development, extension and deployment of best practice energy efficiency labeling programs, and increase efforts to adopt the most stringent energy efficiency standards that are technically feasible and economically justified, (b) introduce new or strengthen existing financial and tax incentives at home for the promotion of energy-efficient technologies, and the actual use of those available technologies on a wide-scale basis, (c) incorporating energy efficient technologies and practices in government buildings and drawing upon alternative energy resources to help power then, OR (d) introduce new or strengthen existing programs that raise public awareness about the importance and benefits of energy efficiency and energy saving (§17).
[22] From §17, bullet points number 1 and 2.

5. Innovative Energy Technologies in Hydrocarbon Production and Use [138]:[23]

138. [*Despite the increased role of alternative sources in the energy mix, hydrocarbons are expected to continue to play a leading role in total energy consumption well into this century*.] Therefore we will work with the private sector[24] to accelerate utilization of innovative technologies that advance (1) more efficient hydrocarbon production[25] and (2) reduce the environmental impact of its (i) production[26] and (ii) use.[27] [These include technologies for deep-sea oil and gas production, oil production from bitumen sands, clean coal technologies, including carbon capture and storage, extraction of gas from gas-hydrates and production of synthetic fuel.]

Background Information

Conventional hydrocarbon sources of energy such as oil, coal, and natural gas in various forms still make about 80% of the world's energy supply, with coal representing 25%. Moreover, 66% of the global electricity production is derived from hydrocarbons. Conventional coal is a dirty-burning fuel with a high degree of CO_2 emissions, which accounts for 40% of the world total. The International Energy Agency (IEA) in its Energy Outlook for the year 2030 forecast an increase in the share of natural gas in the global energy consumption. However, the IEA did not predict a comparable reduction in the use of oil and coal. The expectation is that—despite an absolute increase in the use of renewables and other cleaner energy sources—the global reliance on hydrocarbons will not decrease, especially in Asia, whose growing appetite for energy is being filled by easily accessible coal deposits.[28]

At St. Petersburg, the G8 members recognized this reality and thus, while committing themselves to develop alternatives and renewables, also pledged progress on making hydrocarbons more sustainable.

Commitment Features

Scope: This is our **low-carbon commitment.** Both *production* and *use* by industry should be considered (i.e. supply and demand side).

Research question: What is being done to improve the efficiency and environmental sustainability of the oil, gas, and coal extraction, production, and use?

Energy/Environment balance: Critically, this commitment refers both to the *security of energy supplies* and *environmental protection*. For a G8/13 member to earn a good score, any expansions of fossil fuel production therefore must be coupled with measures to reduce environmental impacts: e.g. it is not sufficient for Canada to expand its oil sands production without employing measures to reduce environmental damage (such as CCS or a form of renewable energy to run the steam injection and upgrading processes).

Actors: This commitment is also where government liaisons with the *private sector* should be discussed (e.g. private-public partnerships).

Evidence: Given the possible breadth of the commitment, it seems reasonable to focus on the key culprits where possible—i.e. the major polluting industries or high energy-intensity sectors (those with significant carbon footprints). The IPCC provides 'source/sink' categorizations, which includes all industries with significant GHG emissions.[29]

Definition(s): Utilization of *innovative technologies* can include creation, marketing, and dissemination.

Resources:

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[23] See IV. Diversifying Energy Mix (Innovative Energy Technologies).
[24] Focus on both production and usage by the private sector.
[25] In addition to what is identified above, examples of environmentally sound hydrocarbon processing include carbon sequestration, carbon capture and storage (CCS), zero emissions power plants (para 24); support for gas venting or flaring, and the production of marketable methane from landfills, agriculture waste and coal-bed methane (para 25).
[26] For example, clean coal technologies: see http://www.uic.com.au/nip83.htm
[27] For example, energy intensive industries that have implemented efficiency measures for fossil fuel use.
[28] IEA's "Key World Energy Statistics" (2006), at http://www.iea.org/Textbase/publications/free_new_Desc.asp?PUBS_ID=1199.
[29] See Appendix B in http://64.233.183.104/search?q=cache:Fk7Q_Ar5ObYJ:www.ipcc-nggip.iges.or.jp/efdb/documents/EFDB_User_Manual_A-D.pdf+IPCC+code+1+energy+industries&hl=en&ct=clnk&cd=2&client=safari.

- For an example of this type of initiative, see notes on South Africa's efforts in the field of carbon sequestration and clean coal technology.[30] Another example is integrated gasification combined cycle (IGCC) clean coal processes.
- UN Department of Economic and Social Affairs (UNDESA) is also promoting the use of clean coal technologies (CCT), which include coal washing, Circulated Fluidized bed combustion (CFBC), and integrated combined gasification cycle (IGCC). Carbon capture and storage (CCS) technologies have also come under focus due to their great environmental benefits.[31]

Scoring

-1 Member does not introduce new measures nor strengthen existing policies, partnerships, and programs to improve the efficiency and environmental sustainability of the oil, gas, and coal extraction, production, and use, including support for private sector initiatives.

0 Member takes some steps to introduce new measures or strengthen existing policies, partnerships, and programs to improve the efficiency and environmental sustainability of hydrocarbon extraction, production, and use **AND** it provides some incentives and support for private sector initiatives.

+1 Member takes significant steps to introduce new or strengthen existing policies and programs to improve the efficiency and environmental sustainability of hydrocarbon extraction, production, and use **AND** it provides significant incentives and support for private sector initiatives.

[30] See http://cooltech.iafrica.com/spring_special/env/968649.htm. More in-depth information on this type of technology is available at the *Carbon Sequestration Leadership Forum* page: http://www.cslforum.org/index.htm.
[31] UNDESA, "Energy and Transport newsletter" (UNDESA Energy and Transport branch of the Division for Sustainable Development), Vol. 6 (December 2006).