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Ask the experts: Getting to grips with global warming

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Amid an intensifying background of debate over the speed and effectiveness of attempts to cut carbon emissions to tackle climate change, Thursday February 16 sees the first anniversary of the Kyoto Protocol coming into force. To mark this anniversary Halldor Thorgeirsson, of the UN's climate change body the UNFCCC, Adam Kirkman, energy and climate programme manager at the World Business Council for Sustainable Development, and Fiona Harvey, the FT's environment correspondent, answer questions on climate change.

Is Kyoto the way forward? Click [here](#) to join the debate

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Do you think the Kyoto protocol is sufficient to stop global warming? The US still hasn't signed up for the Kyoto protocol. Will there be a real worldwide agreement in future? How should this be enforced and will the concept of emissions trading be part of it? Do you think Emissions Trading is an appropriate way to make countries and companies aware of the issue?

>Markus Wachter



>**Fiona Harvey:** The current provisions of the Kyoto protocol, which require developed countries to cut their emissions by about 5 per cent compared with 1990 levels by 2012, will not be enough by themselves to stop global warming. But it is an important first step, because it establishes a framework of emissions reduction and the mechanisms by which that reduction can be achieved, which can form the basis of more stringent international action on the issue in the future.

To the question will there be a real worldwide agreement in the future, the US is not likely to sign up to such an agreement under the present administration. However, the UN, national governments and other bodies are working hard to persuade people in the US of the need for an international agreement on tackling climate change, and there are signs that they are succeeding. Awareness of climate change in the US is now much higher than it was a few years ago, and a majority of people in the US agree that action should be taken on the

issue. That may translate into political pressure which could bring the US into the Kyoto framework.

Emissions trading is one of the main mechanisms of the Kyoto protocol (ironically, it was inserted into the protocol at the insistence of the US), and it does appear to be the most workable way of driving down emissions at the lowest possible economic cost.



>Halldor Thorgeirsson: The emission reductions in the first commitment period of the Kyoto Protocol will not by themselves be sufficient to prevent adverse impacts of climate change. The parties to the Kyoto Protocol will start talks in May here in Bonn on legally binding commitments after 2012. At the same time all Parties to the Framework Convention will start a strategic dialogue on long-term cooperative action to address climate change. Emissions trading among industrial countries - and at the regional or national level - is designed to reduce the overall cost of mitigating climate change.

The project based mechanisms of the Kyoto Protocol - the Clean Development Mechanism and Joint Implementation - have the same purpose. The market based mechanisms make it possible to use market forces to ensure cost effective mitigation actions and to create incentive for the application of best available technology and practices. These market based tools will certainly be an integral part of any future agreement for the period beyond 2012.



>Adam Kirkman: The Kyoto Protocol is a first step toward establishing a global framework on climate change, however it has failed so far to engage a number of major GHG emitting countries and to put in place mechanisms that are truly adapted to market realities. For example the current instrument for generating carbon credits in developing countries, the Clean Development Mechanism (CDM), has to be streamlined and simplified and its visibility over the longer term needs to be enhanced.

The outcomes from COP/MOP in Montreal suggest the CDM issue is in the process of being addressed. The quick adoption of the Marrakech Accords in Montreal also in effect operationalises the Kyoto Protocol including emissions trading, and other factors such as compliance functions. The UNFCCC and the Kyoto Protocol have entered into force, and domestic implementation has begun in many countries.

Emissions trading is becoming a reality in a number of markets around the world and provides a stimulus for discovering a value for carbon. Properly designed and interlinked emissions trading systems can help to steer demand for cost effective emission reductions. Looking forward though a long-term framework on climate change must reach further than the Kyoto Protocol in terms of time horizon, participation, coverage, and overall reduction of GHG emissions. Business believes that longer term international climate policy approaches should among other things:

- engage broad international participation to address these risks effectively
- continue to pursue both voluntary as well as market-based approaches (e.g. emissions trading)
- effectively engage the capital markets
- encourage utilisation of a full range of energy options
- address adaptation needs
- offer greater support to R&D and the deployment of new and existing technologies.

In the UK, an estimated quarter of carbon emissions are emitted as heat loss from buildings. Do you

think governments need to be more proactive in tackling this aspect of climate change through tougher building regulations or tax incentives to encourage the construction of more energy-efficient buildings?

>**Robin Jeffery, Chairman Hambleside Danelaw Limited**



>**Fiona Harvey:** A voluntary code for builders, which would make houses more energy efficient, is to be brought in from April, and that should have some effect. However, the government has been criticised for not taking tougher action, and for dithering over the EU directive on energy efficiency in buildings that should have come into force in January. (We still don't know when the government plans to implement that.)

Tax incentives have been suggested, including rebates on council tax or stamp duty for people who make their homes more energy efficient. So far, the government has made no move to bring in such incentives. If Gordon Brown becomes more green - as he promised to in a speech last year - then we may see such policies, but there is little sign of that as yet.



>**Adam Kirkman:** Buildings (commercial and residential) are collectively large energy consumers and large emitters of CO₂. This issue is of growing importance in cities in both developed and developing countries around the world. Energy consumption in buildings is expected to increase substantially in the future and these increases need to be countered by energy efficiency improvements, consideration of building materials, and innovative design. Incentives and other mechanisms can help create the technology push and pull factors needed to help drive efficiency improvements in this and other sectors.

It is also important to remember that heating and heat loss is one part of the issue of dealing with CO₂ emissions from buildings. In the commercial building sector for example demand side issues such as lighting and appliances (computers, servers etc) also deserve close consideration. The WBCSD's new project 'Energy Efficiency in Buildings' will tackle these areas of high potential for energy savings and related environmental benefits across the built environment.



>**Halldor Thorgeirsson:** Yes, improving energy efficiency is one of the most important strategies to tackle climate change while also providing tangible economic benefits. The residential sector is particularly important in this context and investment decisions now will have cost implications into the future. Regulation and financial incentives are both important tools to promote energy efficiency improvements in the building sector. Public awareness and information to consumers on energy performance of buildings will also promote such improvements.

How do you explain that Greenland's ice cover is actually growing with an average 6,4 cm added every year over the past 15 years?

>**Matthias Huehn, Prof. Dr. oec. HSG Matthias Hühn MPhil MLitt**



>**Adam Kirkman:** Climate change is happening and global temperatures are on the increase. This view has been adopted by the IPCC and the majority of the world's leading scientists. The WBCSD also recognizes the need for better, clear and reliable

data supporting decision-making on the options for addressing both energy and climate change challenges. Climate change is by no means an exact science, yet, especially with respect to specific regions. Therefore, it is difficult to predict the precise effects climate change will have on specific regions such as Greenland's ice cover. This would require an in depth study of specific regions to explore in detail why changes are occurring.



: The mass balance of the Greenland glacier is complex. You need to look at the full picture to get a sense of what is happening to the entire mass of ice. I suspect that the numbers you are referring to

 might apply to annual snow accumulation on the top of the glacier (which is as much a function of precipitation as of temperature). At the same time detailed monitoring of the surface of the entire glacier have shown persistent increase in the extent of annual surface melt. It is also important to look at the outflow of ice thought the large outlet glaciers.

The Arctic Climate Impact Assessment presented new information in 2004 and the Intergovernmental Panel on Climate Change is completing a major assessment of the science of climate change which will be released next year.

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Why is it that mainstream media on a regularly basis praise signatory countries of the Kyoto protocol, even when these don't abide by their own commitments, while at the same time they bash the US for not signing Kyoto but fail to mention that US CO2 emmissions are actually stagnating or even declining in recent years?

>Markus Döring Dipl.-Biochem, Group Dr. R. Bauerfeind, Department of Cell Biology

 >**Halldor Thorgeirsson:** The signatories are abiding to their commitments under the Kyoto Protocol as can be seen from their recent reports. The 34 industrialised countries and the EEC have committed to reduce greenhouse gas emissions by at least 5% below 1990 levels between 2008 and 2012. As a whole, these countries are on their way to lower their emission levels by at least 3.5 per cent below 1990 levels during the first commitment period. With the help of additional measures and the use of Kyoto market-based mechanisms, we expect the group to be able to reach their agreed Kyoto reduction targets. Recently all Governments agreed to a process to find global solutions to address the threat of climate of climate change both in terms of reducing the level of change and adaptation to already visible impact of climate change.

 >**Adam Kirkman:** It is not yet clear whether Kyoto countries are going to reach their Kyoto targets or not in the first commitment period from 2008-2012. If the policies implemented in those countries now are effective, then the Kyoto targets are still within reach. This argument is more difficult to apply for the US, where emissions have increased relative to the reference year 1990 - in many cases more than in other Kyoto countries. More recent trends in the US are encouraging, and deserve significant attention, as do the state national and international initiatives that are being carried out to also make a contribution to international efforts (e.g. State based schemes in the US, G8 process and AP6).

 >**Fiona Harvey:** Actually the FT ran a story a few months ago on how US emissions declined for a period a few years ago. However, since then emissions from the US have recommenced their rising trend.

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All professional economists who have seriously investigated the impact of Kyoto have concluded that it will be economically costly – and thereby harm not only people today but also our ability to adapt to future problems, including those associated with climate change. Have those who so eagerly promote Kyoto considered other, equally or more effective means of addressing climate change and if so why do they so eagerly promote Kyoto as the only game in town?

>Tobias Hartwich

 >**Adam Kirkman:** Whether or not Kyoto will be costly, the question is always what is the alternative. If nothing else is done on the mitigation front, almost certainly the alternative would be more climate change. Finding the balance between adaptation and mitigation is certainly not straightforward, and you are right to suggest that adaptation has not always got as much attention as it

deserves. But this is changing. The Kyoto process, including the recent Montreal conference, has started tackling the difficult questions around adaptation. On the mitigation side, the Kyoto Protocol's market mechanisms take care to minimise costs and provide flexibility for those technologies to be implemented that have the best reduction potential.



>Halldor Thorgeirsson: The story on the economics of Kyoto is not this simple. Yes, there are near-term cost involved in improving management and changing technology. Many of those actions have significant economic benefits as well, which in many cases outweighs the costs. The innovation of the Kyoto Protocol is to use market mechanisms to ensure that reductions are achieved in cost-effective ways. This way the Protocol will put a price on the access to the atmosphere. The other side of the economics coin are then the cost of impacts of climate change - or the costs of inaction -which are currently mainly falling on poor and vulnerable populations.

Recently the UK Treasury initiated a review of the economics of climate change chaired by Nicholas Stern. It will be very interesting to look at their findings.



>Fiona Harvey: Yes, fulfilling the obligations placed on developed countries by the Kyoto protocol will have an economic cost. A recent US study found this is not likely to be dire, however - less than the equivalent of foregoing growth during a single quarter. This cost has to be weighed against the potential future costs of climate change, such as declining agricultural productivity, rising sea levels, etc.

The reason so many people promote Kyoto as the only game in town is that its parent treaty, the UN Framework Convention on Climate Change, is the only worldwide agreement on climate change. There simply are no others.

Isn't Methane a 30 times more dangerous greenhouse gas than CO2? So, why is there so much emphasis on CO2, when we could try to slow climate change by tackling Methane emissions?

>Max Schwing



>Adam Kirkman: It is true that methane is more harmful than CO2 but CO2 emissions are emitted on a far greater scale than Methane emissions. If both gases are converted into the same unit "carbon" the volume of CO2 is around four times greater than Methane. However, both gases are included in the six greenhouse gases subject to the Kyoto Protocol.



>Halldor Thorgeirsson: You are right that each molecule of methane has greater global warming potential than carbon dioxide. When you look at the total emission of greenhouse gases then carbon dioxide is by far the most important. A lot is being done about methane emission currently in many countries. Several projects in developing countries in the context of the CDM are addressing methane emissions both from landfills and from manure.

Special partnership of governments on methane called "Methane to markets" has also started, which is a very promising development.



>Fiona Harvey: Yes, methane is a much more potent greenhouse gas than carbon dioxide. However, less of it is produced. The emphasis on carbon dioxide can also be slightly misleading - most greenhouse gases are measured in "carbon dioxide equivalents", in order to make it easy to compare their effects. So when people talk about reducing carbon dioxide, they are sometimes using this as a shorthand for all greenhouse gases, measured in "carbon dioxide equivalents".

Methane is covered by the Kyoto protocol and there are mechanisms for reducing methane emissions. For

instance, some projects to reduce methane from agriculture (basically, manure) have received funding under the Kyoto protocol's clean development mechanism.

Carbon capture and storage (CCS) is, apart from nuclear power, the only currently-available technology which can be applied at a scale which will achieve meaningful reductions in global CO₂ emissions. Why haven't the CDM Methodology Panel and other responsible UN bodies approved CCS as a method of generating carbon credits and promoted its near-term implementation?

>**Ian Thomas, Director, Turquoise International Limited**



>**Adam Kirkman:** Carbon capture and storage is certainly one of the more promising technologies that will play a key role in reducing carbon emissions over the longer term. We have to take into account, however, that CCS is still as much as 20 years or more away from full commercialisation at the large scale suggested in your question. The CDM has in fact already started dealing with the issue, with many informal and formal discussions taking place in Montreal on how to credibly make CCS work as a CDM project activity. Further input is being sought from the UNFCCC and many technical uncertainties need to be addressed such as leakage issues. Establishing robust CDM methodologies for CCS is a challenging exercise



>**Halldor Thorgeirsson:** The Intergovernmental Panel on Climate Change has prepared a special report on carbon capture and storage and concluded that this technology has the potential of reducing the cost of mitigating climate change by 30%. The parties to the Climate Convention agreed in Montreal in December that this technology is a mitigation option, in a portfolio of mitigation options. The Executive Board of the Clean Development Mechanism has discussed carbon capture and storage and asked for guidance on technical and procedural aspects related to CCS projects in the CDM context.

Workshops will be held in May here in Bonn on carbon capture and storage in general and as CDM projects as well. The IPCC is also completing new inventory guidelines which will make calculations of emission reductions from CCS more consistent. So, the Convention Process is looking seriously at this important mitigation option.

What percentage of an increase in the fuel efficiency of an automobile would make a big difference in reversing global warming?

>**Franklin Carlyle Cooksey**



>**Adam Kirkman:** The transport and mobility sector as a whole is a large energy consumer and contributor to global GHG emissions. World transport activity is also expected to double by 2050. Large shifts are therefore going to be needed to create a sustainable transport sector and fuel efficiency improvements can make a valuable contribution towards reducing climate impacts. Identifying a benchmark or target level of fuel efficiency is a challenge as there are a range of factors that need to be taken into account including vehicle efficiency, the fuel mix used and overall emission levels.

A shift from conventional fuels to biomass fuels, hybrids, hydrogen, and diesels can make a significant difference in the effort towards reducing GHG emissions. It is also worth noting that reducing emissions in the transport and mobility sector will come down to a number of factors including consumer choices between individual and mass forms of transport, decisions over long-haul or short-haul flights, and between vehicles with different fuel efficiency levels and engine configurations.



: In 2002, carbon dioxide emissions from road transport (as a whole) worldwide accounted for about



18% of the total carbon dioxide emissions from the combustion of fuels for energy purposes. This percentage is higher for some highly industrialized countries. Even a small increase in fuel efficiency of automobiles can have significant impact on greenhouse gas emissions and thereby help tackle climate change. The EU and Japan have the most stringent fuel economy standards. The new Chinese standards are more stringent than those of California, Australia, Canada or the United States.

Mr Thorgeirsson - how do you make sense of people who do not see that it is in their own interest to get serious about climate change? In your position, you must have met many people who simply refuse to cooperate. The CEOs of multinationals, the US administration, the Chinese, whoever. Don't they understand? How do you personally, in your quiet moments, if I may put it that way, make sense of this?

>Daniel Mügge, visiting scholar at the London School of Economics and Political Science



>**Halldor Thorgeirsson:** You will be surprised how much interest there is in finding ways to deal with climate change. Leaders in the business community generally understand the climate change issues and some of them have shown strong leadership. Yes, there are others that tend to protect the status quo and resist change. This should not come as a surprise to anyone or discourage him or her.

The positions of governments can also be at odds at times. This is a fact of life. But the strength of a multilateral process, such as the Climate Convention, is measured in its ability to mobilise collective action by governments towards a common objective in spite of differences over approaches. This has been possible and at the Climate Change Conference in Montreal in December all the governments agreed to engage in a dialogue on long-term cooperative action to address climate change. This dialogue will start in May in Bonn.

How much do the panellists agree that: If we are to ever get on top of climate change using the Kyoto Protocol, then eventually every form of economic activity on the planet will have to fall within its gambit, given that there is no economic activity that does not ultimately count as either a sink or source? (Sometimes both, of course) If you do agree with this proposition: How much do you then think that it is really policymakers' subliminal perception of the implications of this conclusion for the world's financial institutions and monetary system that is really responsible for the painfully slow progress of the Protocol?

>Pat Finnegan, Dublin



>**Halldor Thorgeirsson:** It is true that a comprehensive approach to sources and sinks of greenhouse gases will be needed in the long run. As a first step, however, it is more strategic to focus on the sources where the potential to reduce emissions is the greatest. It is an overstatement to say that progress of the Kyoto Protocol has been painfully slow. The first commitment period of the Protocol has not started (it covers the years 2008 to 2012). Governments and industry are preparing themselves for this period and the institutional framework of the Protocol is now fully operational after the successful first Meeting of the Parties to the Protocol in Montreal last December.

You are right that policy makers know that dealing with climate change is a long term challenge and at the World Summit in New York last September world leaders recognised "that climate change is a serious and long-term challenge that has the potential to affect every part of the globe" and reaffirmed their "commitment to the ultimate objective of the UNFCCC to stabilise greenhouse gas concentrations in the atmosphere at a level that prevents dangerous anthropogenic interference with the climate system."



: The global energy system (i.e all the ways in which energy flows through the economy), is



characterised by investment capital decisions taken over long time horizons (i.e. 20-50 years). Capital projects implemented now set an emission pathway long into the future. For this reason policy makers must recognise the need for a coordinated and coherent global approach that provides greater predictability for business over the long term.

The WBCSD welcomes the call by some governments for a “long, loud and legal” structure for combating climate change, and believe that a long-term global policy framework must include a number of interlinked elements. One of these is the effective engagement of the capital markets. It is correct to suggest that at this stage the Kyoto Protocol has had its difficulties in putting in place mechanisms that are truly adapted to market realities and which lead to the rerouting of large scale investments into low carbon options.

The market based approach of the Kyoto Protocol, with a focus on the creation of a value for carbon is however one method for beginning the process of engaging the finance community and the capital markets. Optimising the use of financial resources will be a key consideration in future policy development. Going forward a broad range of innovative mechanisms, policy instruments and voluntary measures should be used to remove barriers to investment for new technologies. Importantly these mechanisms and instruments must send economic signals that are strong enough to engage the capital markets. Investors and financiers must be enticed to allocate capital to low carbon infrastructure, and products and services that support good climate adaptation strategies. This is where the establishment of a long-term value for carbon will help to level the playing field, and become a key influence in the investment decision making and capital allocation process.

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In his State of the Union address President Bush cited the development of clean coal technology as integral to US plans to reduce oil imports by 75%. Are developments in this field a good way to reduce emissions? As the largest global carbon producing countries what discussions, if any, have the US and China had on the subject of global warming, and what voluntary consensus would you recommend them to reach?

>**Elaine Moore**


Fiona Harvey: Yes, clean coal shows great promise as a method of reducing emissions. There are several possible forms of clean coal technology, most of which rely on increasing the efficiency of coal as it is burned. As today's power plants only operate at between 35 and 40 per cent efficiency, there are significant gains to be made - especially if you consider that coal is likely to remain a significant energy source around the world, given the high oil price and the availability of coal in regions such as the US and China. The EU and China are working on a zero emissions coal plant that would not only burn coal more efficiently but remove the carbon dioxide and bury it.

The US and China have had several discussions on climate change that we know about, the most recent being the first meeting of the Asia Pacific Partnership on Clean Development and Climate in January. The partners in this initiative are the US, China, Australia, India, Japan and South Korea, who are together responsible for more than half of the world's emissions.

But the partnership has been criticised by environmental groups for failing to put in place targets and timetables for emissions reduction.


Adam Kirkman: Clean coal technologies are key technologies for creating emission reductions, especially in the short term when widespread options such as storage of carbon are not yet commercially available. Clean coal technologies can increase the thermal efficiency of coal power plants, which means that a significantly less amount of carbon is emitted per kilowatt hour of power generated. Clean coal technologies can also reduce oil dependence if the energy generated can be used in the

transport sector, but this is only the case for certain, still rather expensive technologies.

The WBCSD is monitoring dialogue between the EU and China and more recently dialogue between the US, China and other members as part of the AP6 meeting. We note with reference to your question that the work plan that has been released on AP6 has Australia and China as co-chairs of the Cleaner Fossil Energy Task Force.



>Halldor Thorgeirsson: It is clear that fossil fuels will be an important energy source for some time to come. Current fossil fuel technology is not sustainable however, as it is inefficient and allows the carbon dioxide to enter the atmosphere. Research and development into cleaner fossil fuel technology will therefore be very important part of effective response to climate change. Emission limits will then need to be set to ensure that the new technology is actually deployed quickly. It is not sufficient to focus only on the technology side, governments need to develop policies to ensure that appropriate technology replaces outdated technology.

Could you please comment on the effect of a changed climate on energy security and supply?

>Dr Neil S. Beattie, Innova Technology Ltd, Cambridge



>Adam Kirkman: Energy is the single most important enabler of economic development and its production and use will surge in the coming decades. This represents a crucial challenge for society not only in terms of energy availability, security and affordability, but also as it may bring further adverse impacts on our environment.

Climate change is one of a suite of inter-related challenges facing the world alongside economic growth, poverty reduction, and sustainable development. Addressing these challenges requires clarity on these interrelated issues. Development, economic growth, energy security and supply and climate change agendas must be addressed in an integrated manner with full consideration of other global development themes and priorities.

Adaptation to some level of climate change should play a part in any future strategy on energy security and supply issues. Impacts will obviously vary from region to region.



>Halldor Thorgeirsson: Growing awareness of climate change and its impacts is changing the way the energy security concept is viewed. It is no longer sufficient to only look at the security of energy supply; the adverse climate impacts of energy production and use will also need to be considered and energy needs to be supplied in ways that are consistent with climate protection. Climate change itself can also impact some sources of energy. One example of this is hydropower, which can be adversely affected by droughts made more frequent by climate change. Glacier melt will also reduce hydropower potential in the long run, while it might increase it in the short term.

I would like to ask Mr Thorgeirsson what he thinks the prospects are for the Asia-Pacific Partnership on Clean Development and Climate. Will this non-binding agreement contribute positively to the UNFCCC's goals, or is it in his view an obstacle, especially in relation to the goals of the Kyoto Protocol? Or is it perhaps a 'paper tiger'?

>Anna Ntenta, student at Stockholm University



: There is no contradiction between the Asia-Pacific Partnership on Clean Development and Climate and the Kyoto Protocol. The governments involved have stated this clearly. We have welcomed the

 initiative and the commitment to action on climate change expressed by the participating Governments.

It is too early to determine how much the partnership will contribute to the objective of the Climate Convention, which is to stabilize concentrations of greenhouse gases in the atmosphere at non-dangerous levels. At a recent meeting of the partnership in Sidney, the private sector expressed strong interest in engaging in partnership with governments in the urgent task of ensuring faster deployment of appropriate technology. This is encouraging.

 **>Adam Kirkman:** The WBCSD is encouraged by efforts under way to complement the UNFCCC process and further engage business in helping to find practical solutions to climate change. We note with interest the emergence of 'other platforms' where long term challenges of climate change are openly discussed in forums that bring together governments and the business community.

The G8 process and the Gleneagles Plan of Action are to be welcomed for continuing to strengthen governmental support to commit to action on climate change. The voluntary based Asia Pacific Partnership, meeting for the first time in Sydney in January 2006, has promised to complement the UNFCCC process by offering support for economic development and accelerating the deployment of cleaner, more efficient technologies to reduce pollution, promote energy security and address climate change concerns. One can observe that the goals of the Asia Pacific Partnership (also referred to as the AP6) are aligned to the technology transfer objectives of the Kyoto Protocol's Clean Development Mechanism (CDM).

The WBCSD acknowledges that it is too early to tell how complementary and successful the Partnership might ultimately prove to be. Some interesting aspects however appear to have emerged from the inaugural AP6 meeting.

Firstly a willingness by governments to engage wherever possible the perspectives of the business community. Secondly the establishment of sectoral task forces in areas such as Cleaner Fossil Energy, Aluminium, Steel, Cement, and Buildings and Appliances. Technology deployment in sectors such as these will play a key part in helping to address future challenges of climate change.

Many sectoral approaches at local and national levels have delivered real progress in reducing GHGs. Processes that complement UNFCCC efforts in encouraging ongoing technological innovation should therefore be welcomed as part of a collective global effort to address energy and climate challenges.

The WBCSD has offered to participate in this live discussion at short notice as part of our commitment to continue to expand the dialogue on the challenges of addressing climate change. Given the nature of this particular exercise, the views expressed in our responses are those of the author and do not necessarily capture all views of our member companies.

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