The World Bank and its carbon footprint:

Why the World Bank is still far from being an environment bank

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Abbreviations

CEIF	Clean Energy Investment Framework
DFID	Department for International Development
GEF	Global Environment Facility
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IFC	International Finance Corporation
MIGA	Multilateral Investment Guarantee Agency
WBG	World Bank Group
NR	New renewable energy
EE	Energy efficiency

Energy measurements

EJ	Exajoules
Mt	Megatonnes (1Mt is 1,000 tonnes)
Gt	Gigatonnes (1Gt is 1,000 Mt)

Definitions of energy technologies (from World Bank reports)

New renewable energy	Energy from biomass, solar, wind, geothermal, small hydro (under 10MW). These may be small, standalone units or connected to the grid.
Renewable energy	This includes new renewable energy, energy efficiency plus large hydro power.
New renewables and energy efficiency	Terms used by the World Bank in reference to the annual commitment set at the Bonn International Conference for Renewable Energies in 2004, that spending by the Bank on new renewables and energy efficiency (excluding large hydro) should increase by a target of 20% per year.
Low-carbon projects	This is a new definition, under the Clean Energy for Development Investment Framework, which pulls together all projects the Bank considers 'clean'. It includes: renewable energy projects (including all sizes of hydro power), energy efficiency, power plant rehabilitation, district heating, biomass waste-fuels energy, gas-flaring reduction, high-efficiency coal-fired thermal plants (super-critical and ultra super-critical).
Large hydro power	Hydropower with a capacity larger than 10 Megawatt.
Power sector	Improves energy transmission, distribution and generation, and is usually for large-scale, fossil fuel on-grid projects.
'Other' energy	Includes projects where energy policy support is provided, such as Energy Sector Development Policy Loans or other WBG interventions where the form of energy cannot be clearly distinguished, or where there are multiple energy subsectors supported within a single project that could not be pro-rated – including energy storage projects.

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Executive summary

The effects of climate change will be felt earliest and most severely by the world's poorest countries. Climate change is threatening poor people and the biodiversity on which they depend and has the potential to undo decades of effort by development institutions to fight poverty and reach the Millennium Development Goals. The Department for International Development (DFID) in the UK has consequently made tackling climate change a top priority. As a consequence, Gordon Brown recently called upon the World Bank to become a world environment bank.

The World Bank is set to launch a series of Climate Investment Funds at the G8 in Japan in July, and is currently consulting on a Strategic Framework on Climate Change and Development. Thus it is a timely opportunity for DFID, as the fourth's largest shareholder in the Bank, to call on it to radically transform its energy portfolio and improve its coherence.

DFID has increased support to the Bank substantially in the last year and states that it has used the negotiations to increase the Bank's focus on climate change. However, this WWF report shows that the World Bank still has a way to go before its operations become environmentally sustainable.

While the Bank's financing of renewable energy has increased in the past three years, its current funding in this sector has only just returned to the level it was in some years during the previous decade. Furthermore, its fastest-growing renewable energy investments are in large-scale hydropower. Apart from potentially negative socio-economic impacts, large-scale hydropower may also have a very large carbon footprint which needs to be assessed before investments are made.

Most important, even as the World Bank's financing of renewable energy is on the increase, it continues to invest heavily in fossil fuel technologies. Its investment in oil and gas in FY07 was proportionally higher than the average between FY90-FY07 (26% versus 22%). And its oil and gas financing in the last three years (FY05-07) amounted to more than US$3 billion, nearly double the amount the British government has pledged to the Environmental Transformation Fund for the next three years.

In the absence of an ambitious climate and energy strategy, it is unlikely that these fossil fuel investments incorporate specific climate objectives or aim to reduce existing carbon emissions.

In FY07 in the oil and gas sector, the proportion of World Bank financing for gas, which has lower carbon emissions than oil, was 70%. However, there is no evidence that this is a deliberate and permanent shift towards cleaner energy sources.

What ultimately matters in terms of generating or mitigating climate change is the volume of greenhouse gases in the atmosphere. With this in mind, WWF has sought to calculate the carbon footprint of the World Bank's energy portfolio. We found that since 1997, the World Bank has financed more than 26 Gigatonnes of lifetime CO_2 emissions, which is around 45 times the current annual CO_2 emissions of the UK.

While our data shows that there has been a decrease in supported emissions since FY05, the recent trend seems to be upwards again, which may indicate that the downward shift in the carbon footprint was only temporary.

The exercise of calculating the World Bank's footprint in itself raised a number of important issues, resulting in an underestimation of the overall footprint. These will need to be addressed if the Bank is to accurately calculate its carbon footprint.

The findings in this report indicate that the World Bank still has a way to go before it can lay claim to being an environment bank. DFID should use its position as a major shareholder to call on the World Bank to adopt an ambitious climate change energy strategy for its own energy sector investments; establish ambitious and measurable targets, tools and transparent reporting, and use a shadow price for carbon in its project assessments; and support socially and environmentally sustainable low-carbon technologies. Furthermore, DFID should also ensure that the World Bank calculates its carbon footprint in a fully comprehensive and transparent way, taking into account the recommendations by WWF in this report, and develops substantial programmatic support to help countries shift towards climate smart investment decisions.

1. The UK's climate change ambitions for the World Bank

> *"I cannot see why we do not move immediately for the World Bank to become a world environment bank. We need an institution that is global, that can provide for countries that want to move to alternative sources of energy but who will simply build coal-fired power stations without an institution that is prepared to loan or give grants."*
> *Gordon Brown, World Economic Forum, January 2008*[1].

The world is warming and a concerted effort is required in the coming years and decades to avoid a global temperature rise beyond 2°C above pre-industrial levels, and the consequent impacts of catastrophic climate change on people and the biodiversity upon which they depend. Without urgent and rapid efforts to reduce global carbon emissions, the Intergovernmental Panel on Climate Change (IPCC) predicts a possible temperature rise of 4°C or more during this century[2].

The British government has acknowledged the urgent need to deal with the challenge of climate change. Its Department for International Development (DFID) recognises that the effects of climate change are predicted to be felt earliest and most severely by the poorest countries and realises that climate change has the potential to undo decades of efforts to fight poverty and reach the Millennium Development Goals[3]. The UK aims to play a leading role in tackling climate change internationally and in developing countries, and it ensured climate change was firmly on the international agenda at the G8 summit in Gleneagles in 2005. It was one of the first developed country governments to commit large sums of government resources to tackle climate change in developing countries, through an £800 million Environmental Transformation Fund in March 2007.

DFID is keen for the World Bank to play a key role in tackling the climate challenge in developing countries. Gordon Brown has even called on the world to transform the Bank into a "world environment bank". DFID considers the World Bank a key player in addressing climate change issues through a development lens because of its efficiency and expediency. DFID has been working closely with the Bank to set up Climate Investment Funds, through which the Environmental Transformation Fund will be channelled. In addition to its climate-related support, DFID is increasingly channelling its finances towards the World Bank, and in 2007 became the largest contributor to the International Development Association, which is the World Bank branch that focuses on the poorest countries in the world.

The World Bank[4] has become proactive on climate change issues in the past few years, and has undertaken a range of climate-related actions to move the issue towards the core of the Bank's mandate and operations. One such move, the Bank's Clean Energy Investment Framework[5] (CEIF) of 2006, was a first major response to the G8's call for action on climate change in 2005. It was followed by the Bank's more ambitious Long Term Strategic Exercise[6], in 2007. The latter prioritised Global Public Goods[7] as one of the key challenges on which the World Bank should focus in the next decade and beyond, and it specified shared environmental resources (environmental commons) and climate change as central concerns within this issue.

At the start of 2008, the Bank announced that it would be launching a series of multi-billion dollar Climate Investment Funds at the G8 meeting in July. These and other climate-related initiatives have served as a platform to launch a more comprehensive and multi-sectoral approach in the form of a Strategic Framework on Climate Change and Development (SFCCD)[8].

The Framework aims to articulate the World Bank's vision and roadmap for action on how best to integrate climate change and development challenges without compromising growth and poverty reduction in developing countries.

The recognition that climate change is a core development issue, and that it needs to be built into development programmes, is extremely welcome if long overdue. The exercise to develop a strategic framework on climate change could represent an important step in the Bank's efforts to tackle global poverty in an environmentally sustainable way, but only if it provides an umbrella approach that affects *all* World Bank operations, rather than an isolated initiative to take on more climate-related actions while allowing business as usual to continue.

If DFID wants the World Bank to become a truly environmentally friendly Bank, it will need to do more than setting up new trust funds under the World Bank's administration. The Strategic Framework on Climate Change and Development provides a key opportunity for DFID to ensure that World Bank core business shifts away from business as usual, which would have profound climate change impacts, and moves towards supporting a future low-carbon world.

More than half of the World Bank's sector investments, including transport, agriculture (incorporating irrigation and forestry), water, energy and the urban sector, have strong links to the climate change agenda[9]. All these sectors will need to be rethought in the context of climate change, both in terms of stabilising greenhouse gas emissions and dealing with the predicted impacts.

This report focuses on energy sector financing of the World Bank, and argues that if DFID wants the Bank to become an environment bank, it needs to demand that the Strategic Framework on Climate Change includes a complete rethink of the World Bank's energy investment portfolio.

The World Bank should:

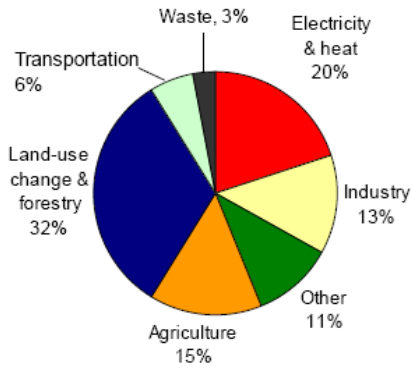
- Adopt an ambitious climate change energy strategy for its own energy sector investments
- Establish ambitious and measurable targets, tools and transparent reporting, and use a shadow price for carbon in its project assessments
- Ensure it supports socially and environmentally sustainable low-carbon technologies.
- Calculate its carbon footprint in a fully comprehensive and transparent way, taking into account the recommendations by WWF in this report, and
- Develop substantial programmatic support to help countries shift towards climate smart investment decisions.

2. A global energy revolution is needed

The Stern Review on the economics of climate change[10] estimated that the global power sector must be decarbonised by 60-75% by 2050 and predictions from recent IPCC reports warn that even greater reductions in global carbon emissions of up to 80% will be needed to stay below a 2°C increase[11]. A dramatic transformation is therefore needed in global energy provision, responding to the multiple objectives of a) radically reducing carbon emissions, b) fulfilling the energy needs of rapidly growing economies and c) providing energy to millions of people without energy access.

While developed countries need to act first and foremost to radically reduce the carbon intensity of their economies, the World Bank, as a public institution that aims to contribute to poverty reduction, has a responsibility to provide solutions that will avoid global temperature increases of more than 2°C. While current emissions in developing countries are predominantly from changes in land-use and deforestation (see Figure 1), the contribution of the electricity and power sectors is set to rise exponentially if economies grow under a 'business as usual' scenario. Through its lending and investment practices in developing countries, the Bank is uniquely placed to help catalyse the necessary transition to economies that minimise greenhouse gas emissions, and to help developing country economies to function in a low-carbon world.

Figure 1: GHG emissions by sector, IBRD – IDA countries, 2000[12]



However, in 2007 (FY07) the World Bank Group's energy sector portfolio still did not reflect a credible underlying strategy to support a transition to a low-carbon world. According to a recent World Resources Institute report, only 17.3% of IDA/IBRD energy 'pipelines' (the World Bank's term for its planned energy projects) in 2007 integrated climate change, and 46.5% did not mention climate change at all. With regards to the IFC energy pipeline, only 5.4% integrated climate change, and 27.7% made no consideration of climate change at all[13].

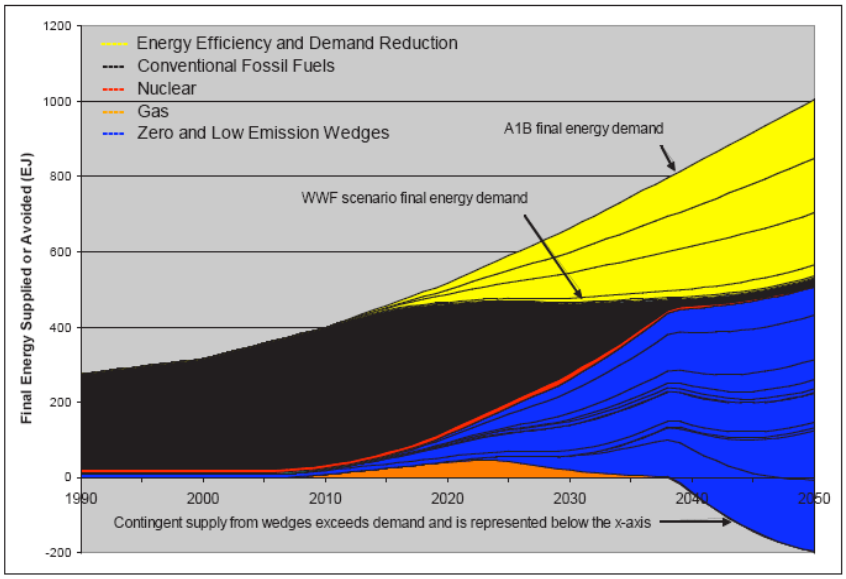
World Bank Group financing of oil and gas alone over the last three years (FY05-07) still amounted to more than US$3 billion[14], nearly double the amount the UK government has pledged for the next three years with the £800 million (US$1.6 billion) Environmental Transformation Fund to tackle climate change in developing countries.

A recent WWF report *Climate Solutions: WWF's Vision for 2050*[15] demonstrated it is technically feasible, globally, to shift to sustainable energy resources and that technologies are available today to meet the more than doubling of global demand for energy services projected by 2050, while avoiding dangerous temperature rises of more than 2°C above pre-industrial levels. The trajectory proposed by WWF includes an end to the dominance of fossil energy, a phase-out of nuclear power, delivery of high efficiency energy services, and a rapid expansion of renewable energy (see Figure 2).

WWF's assessment is that there is still sufficient time to build up and deploy these technologies, but only if the necessary decisions are made in the next five years. As a public investment bank,

the World Bank could play an important role in supporting this trajectory, but it still has a long way to go to fully integrate climate change in its energy portfolio.

Figure 2: WWF Climate Solutions: pathway towards global low-carbon energy



Energy efficiency and demand reduction measures (yellow) largely stabilise energy demand by about 2020, allowing a rising demand for the provision of energy services to be met from a more or less level supply of energy. Meanwhile zero- and low-emission energy sources are built up (blue) until about 2040 when, assuming none fail significantly, fossil-fuel use (black) is reduced to a 'persistent' residual level of 20EJ for applications which are hard to replace. Nuclear energy use (in red) is phased out. The scenario provides spare capacity as a contingency, represented by energy supply shown reaching below the x-axis.

For over a decade, civil society organisations have been calling on the World Bank to reduce its financing of fossil fuel-based energy, and instead focus on clean energy. The call is motivated not just because of the impact on climate change, but also because fossil fuel extraction has often gone hand in hand with damaging social and environmental impacts at the project site. For example, a recent World Bank study estimated that health effects from air pollution in China (primarily generated by burning coal) will cost US$39 billion in 2020, accounting for 13% of China's GDP[16].

In the majority of cases, oil and gas extraction projects do not provide energy locally[17], and even if large export earnings are made from oil and gas exports, these often do not contribute to poverty reduction or the Millennium Development Goals. On the contrary, countries whose economies depend on natural resources such as oil often grow more slowly in the long term, and tend to be more prone to conflict, inequality, poverty and greater corruption[18]. While the Extractive Industries Transparency Initiative[19] (EITI) aims to improve governance and transparency and to decrease corruption, benefits for poverty reduction are indirect and assumed to 'trickle down', and it is not clear whether these benefits have been proven.

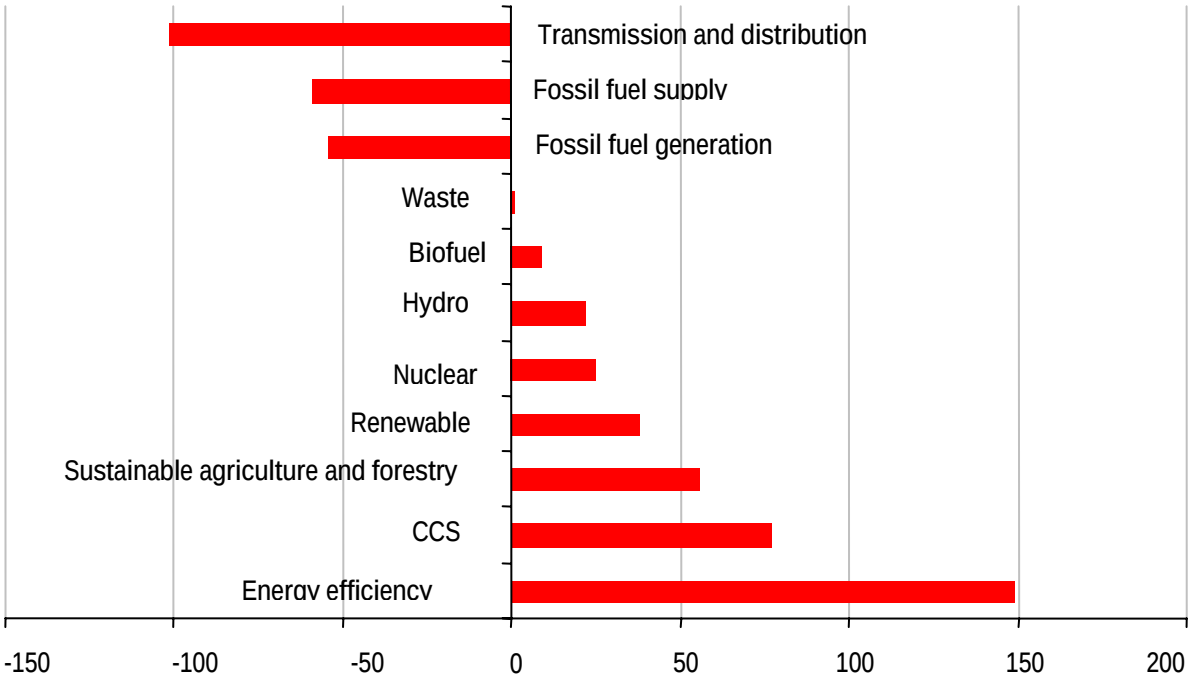
In 2004, Dr Emil Salim, who headed up the World Bank's commissioned Extractive Industries Review (EIR), concluded the review by recommending that the World Bank Group should immediately formalise a moratorium on coal and phase out investments in oil production by 2008. Instead, he proposed, the Bank should devote its scarce resources to investments in renewable energy resource development[20]. However, the Bank continued to invest in fossil fuels, maintaining that "all forms of energy have a role to play", and that "by staying engaged in oil and coal we can have an influential role in ensuring that the best environmental and social practices are followed"[21]. The Bank also states that it is respecting country ownership by responding to the demands of developing country governments to finance their fossil fuel potential.

But faced with predictions of dangerous climate change, these arguments are no longer valid. The Bank risks undermining its own poverty mission by continuing to invest in climate-damaging fossil fuel projects. For too long and in the face of contrary evidence, development institutions have continued to argue in favour of financing of fossil fuel extraction and energy[22].

Fossil fuels should be increasingly seen as a hazardous investment, in direct contradiction with development objectives if not part of an overall climate strategy. Furthermore, in anticipation of a future global carbon market, the World Bank should adopt an appropriate shadow price of carbon in project assessment. The significant extra financial risk attached to fossil fuel investment, for which developing countries concerned may end up having to pay, would then be clear. This information could then be used to inform investment decisions.

Figure 3 illustrates estimates from the United Nations Framework Convention on Climate Change (UNFCCC) for the cost of redirecting financial investments from fossil fuel-based generation, supply, and transmission and distribution, towards low-carbon technologies. The energy infrastructure that is financed today lays the foundation for the global emissions profile of the future. Shifting the Bank's investments is therefore crucial to avoid locking developing countries into the same carbon intensive development trajectories followed by the North.

Figure 3: Additional annual investment in 2030 to achieve global carbon stabilisation (US$ billions)



Based on Investment and financial flows to address climate change *(2007), United Nations Framework Convention on Climate Change.*

If the World Bank is serious about climate change, it can waste no time in rapidly and fundamentally shifting to an energy investment portfolio that is cleaner and greener. The World Bank should give a clear sign to the private sector that it is no longer willing to invest in carbon intensive fossil fuel technologies, especially at a time when high oil prices are making oil extraction more appealing for the private sector, including extremely carbon-intensive and environmentally damaging processes such as oil sands production.

Beyond the immediate impact of the financing patterns explored in this report, there is also the question of the World Bank's role as a global leader. The Bank is influential in many ways, including its capacity to leverage private investment. It holds an influential position in global debates and sets an example to other major public and private financial institutions. All these factors add to the importance of the World Bank taking a clear leadership role with respect to its decisions on energy financing.

3. World Bank energy sector financing

The World Bank is keen to demonstrate that it has started respond to climate change concerns. The SFCCD consultation document states that "the World Bank Group has accumulated substantial experience in addressing climate change in the context of development and poverty reduction" and that "commendable results" have been achieved through the CEIF as "lending to energy access and low-carbon energy projects, and the Carbon Finance (CF) business have increased significantly"[23]. Specifically, it states that the WBG has invested about US$1.4 billion in low-carbon projects in financial year 2007.

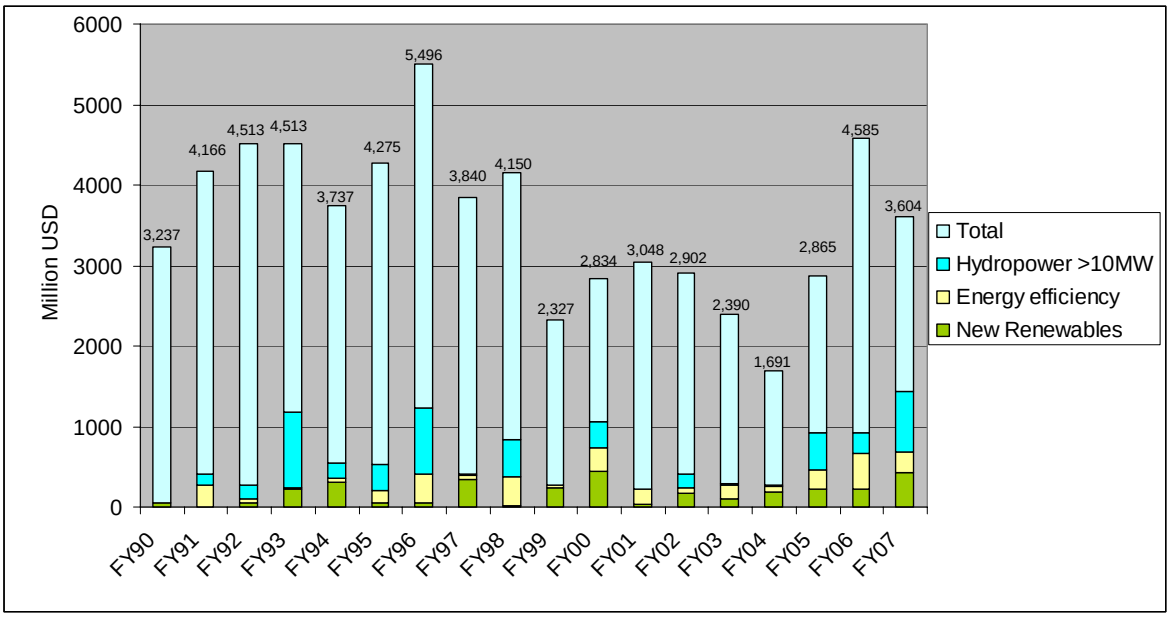
The consultation document also recognises that there is still much work to be done to establish appropriate tools and methodologies, including how to measure and report the carbon footprint of the World Bank portfolio. But, as discussed below, progress on shifting the World Bank's energy investment portfolio towards clean energy has been patchy and less consistent than its press releases suggest. A clearer overall framework and approach, along with ambitious targets, are needed to decarbonise the World Bank's energy investment portfolio. Without these measures, the World Bank can hardly lay claim to becoming a 'world environment bank' as proposed by the UK Prime Minister in January 2008.

WORLD BANK FINANCING OF RENEWABLE ENERGY 1990-2007

Recent World Bank press releases and reports boast that in FY07 its investments in renewable energy were increased dramatically by 67% and now make up US$1.43 billion, or 40% of the overall energy sector investment portfolio[24]. Its definition of renewable energy includes *new renewable energy (NR)* (energy from biomass, solar, wind, geothermal and small hydro), *energy efficiency (EE)* projects in industry, commercial, residential and transport sectors, and *large hydro power* (with capacity over 10MW). Similarly, in recent energy sector update reports and climate-related reports, the Bank states that it has outperformed its own target, set at the International Conference on Renewable Energies in Bonn in 2004, to increase funding of new renewable energy projects and energy efficiency by 20% a year[25], because funding for such projects reached US$1.8 billion over the three-year period, almost double the 'Bonn' commitment.[26]

However, when put in the context of the World Bank's long term engagement in the energy sector, these figures are less impressive than they first appear. Figure 4 illustrates the World Bank Group's overall energy sector financing between 1990 and 2007, and shows the proportion of renewable energy (new renewables, energy efficiency, and large hydro) for each of the yearly totals. While the proportion of investment in renewable energy has indeed increased in FY07 compared with the financial years immediately prior to 2007, the World Bank's own data shows similar levels of investment were also reached in FY93, FY96 and FY00. It appears that current funding of renewable energy has only just regained the same levels as in some previous financial years, after having dropped significantly since FY01. The data in Figure 3 shows that recent achievements are in fact fairly modest in comparison to the past.

Figure 4: WBG energy sector investments FY90-07: hydropower, EE and NR as a proportion of total funding



Notes:

1) World Bank Financial Years run from 1 July to 30 June.
2) According to WBG categories, total energy sector investments include: power, new renewables, energy efficiency, hydropower larger than 10MW, coal, oil and gas, and general energy sector investments.
3) All financial figures in this report are based on data from World Bank reports[27]. The whole data set for FY90-07 is in Annex 1.

The lion's share of the increase in renewable energy investment has been for large hydropower[28], even though this is not a panacea for the climate problem. Figure 5 shows that funding for large hydropower has almost trebled between FY06 and FY07 (a 292% increase). The World Bank Group consist of four organisations[29], and it appears that the exponential increase in financing for hydropower in the last five years has been mainly because of IDA and IBRD financing. In fact, IDA and IBRD financing for NR and EE actually halved between FY06 and FY07. It is only by including IDA/IBRD managed funds originating from the Global Environment Facility[30] and from carbon funds that the financing trend for NR and EE remains strong (see Figure 6).

Figure 5: WBG energy sector investments FY90-07: technology trends

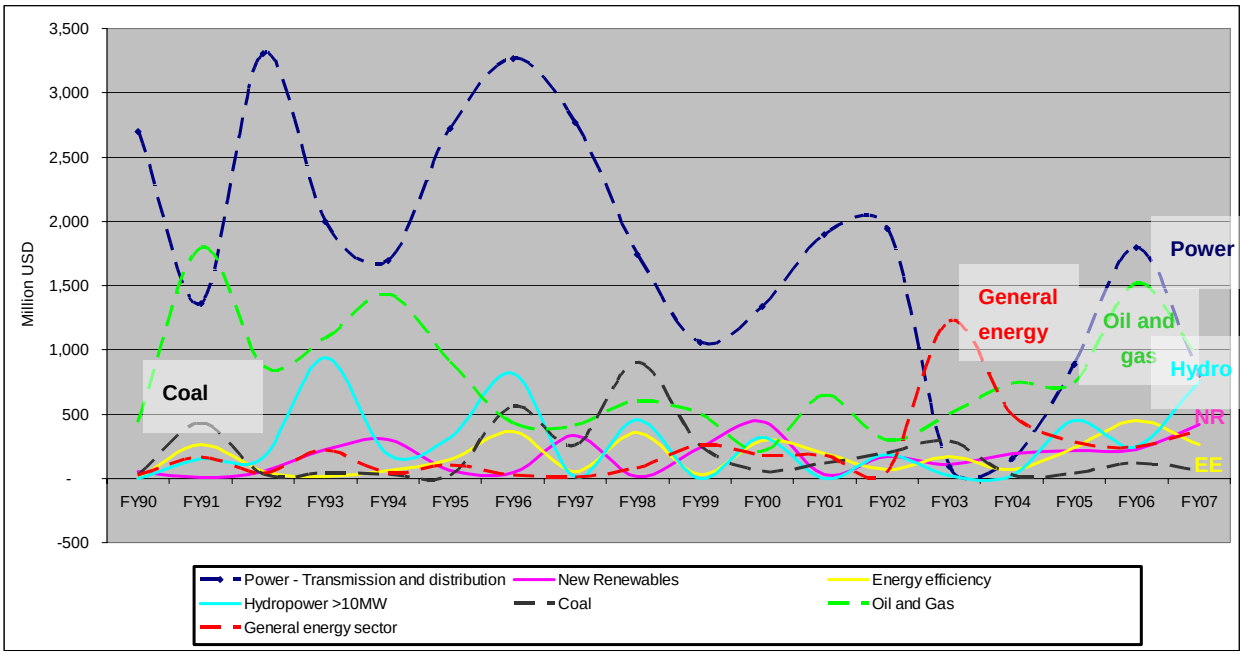
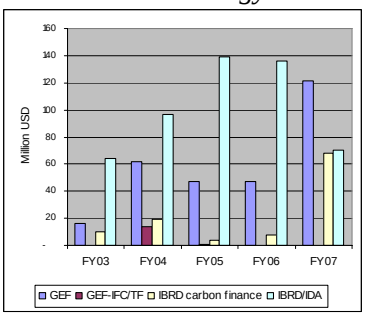
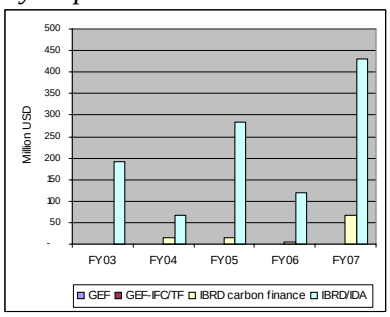


Figure 6: IBRD/IDA funding of renewable energy, FY03-07

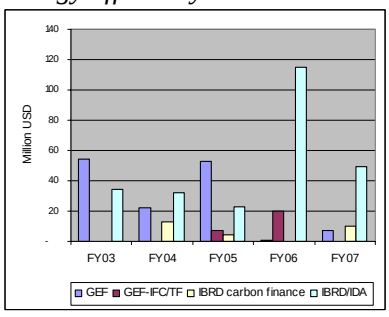
New renewable energy



Hydropower



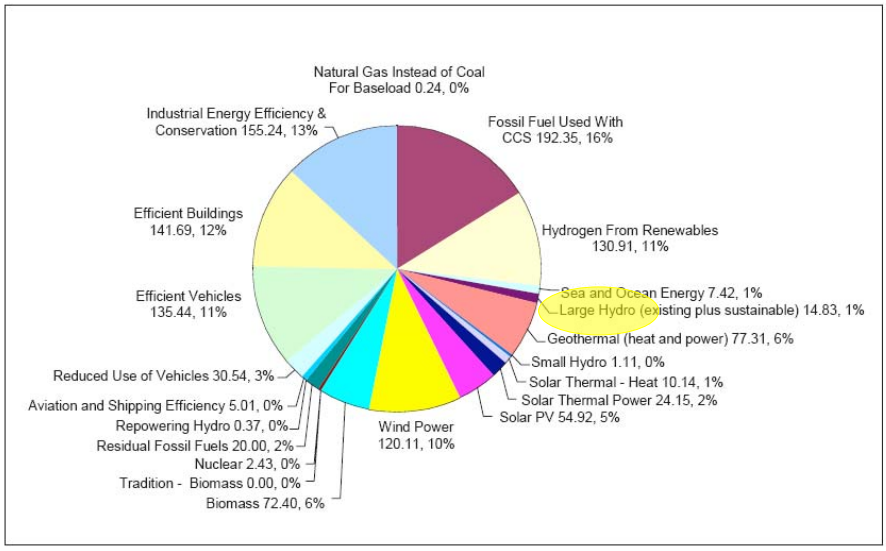
Energy efficiency



Source: Catalyzing Private Investment for a Low-Carbon Economy: World Bank Group Progress Report on Renewable Energy & Energy Efficiency in Fiscal 2007 (Annex 2)

Large-scale hydropower (compliant with the guidelines of the World Commission on Dams[31]) does play a role in the WWF future low-carbon energy scenario, but it is a relatively small part (1% of overall energy supply mix) (see Figure 7). WWF's energy vision for the future foresees technologies such as solar thermal, solar PV, wind power and small hydro also playing a crucial role in global energy provision. And often, at least as a transitional solution, these are better at providing energy direct to the poor and therefore contribute substantially to poverty reduction at household levels.

Figure 7: Energy supply mix in 2050. WWF Vision for energy 2050



The WWF supply mix – a snapshot of the contribution of each of the 'climate solution wedges' (see Figure 2) in 2050, first in exajoules and then as a percentage of energy supplied or avoided, compared with projection of energy demand according to the IPCC.

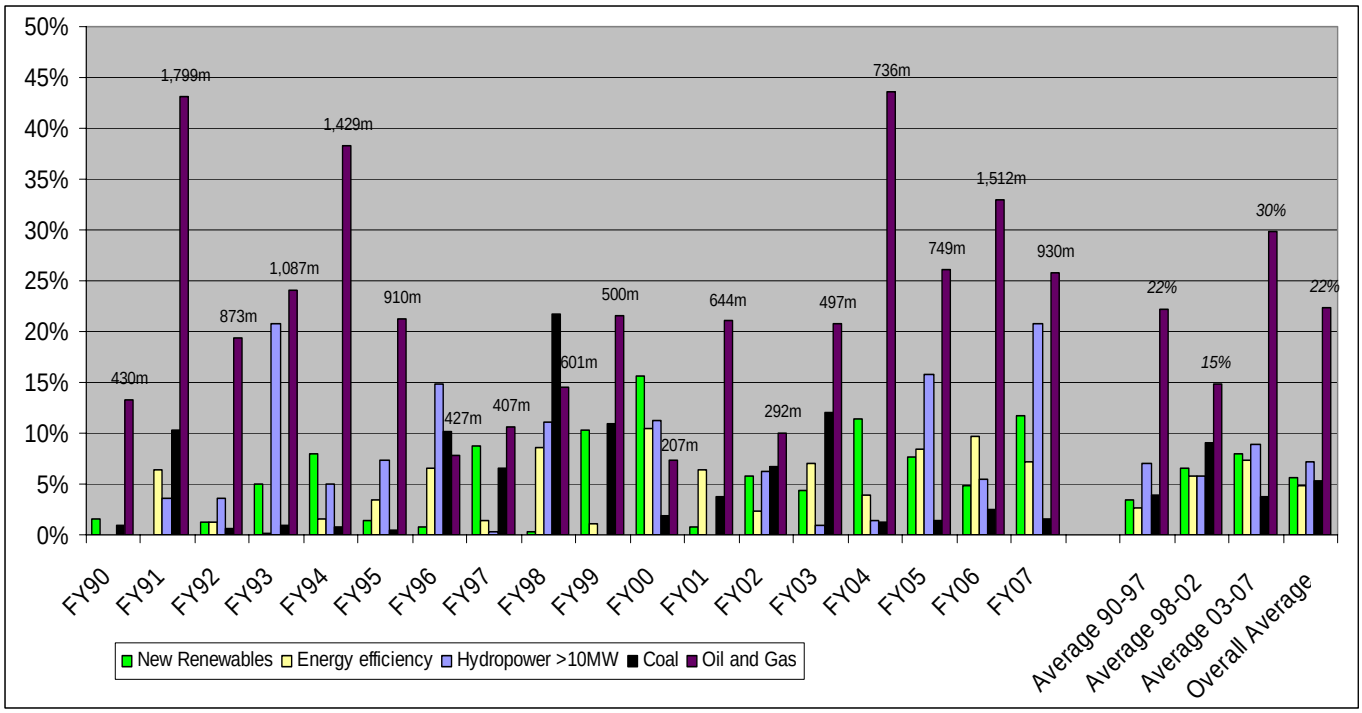
Furthermore, it needs to be stressed that all renewable energies have a carbon footprint. For hydropower, beyond the potential negative socio-economic impacts such as displacement of local people and biodiversity loss, there are emissions during construction (such as cement production) and most important, greenhouse gas emissions from reservoirs, in particular in the form of the potent greenhouse gas methane. In unfavourable circumstances, for example in shallow tropical reservoirs with high biomass content, the carbon footprint may even be comparable to fossil fuel plants. The science of greenhouse gas reservoir emissions is inconclusive, and predictive models need to be developed to assess likely emissions before investment and design decisions are taken. Investment in large hydropower as part of a clean energy strategy should be conducted with appropriate precautions. Current World Bank practice does not yet go far enough in addressing these issues.

Finally, while the Bank states that it more than doubled its Bonn pledge of increasing financing for NR and EE by 20% (which in itself started from a very low baseline of US$209 million[32], compared to the yearly average of US$347 million for the period 1994-2004), the actual increase between FY06 and 07 was only 2% – from US$668m to US$682m. The Bank makes the claim based on the baseline figure of $209 million rather than the percentage increase year on year (see Annex 3). There is still no evidence of a systematic increase in funding for new renewables and energy efficiency, and current frameworks and targets are too weak to ensure that there are clear, year on year advancements towards clean energy technologies.

WORLD BANK FOSSIL FUEL FINANCING

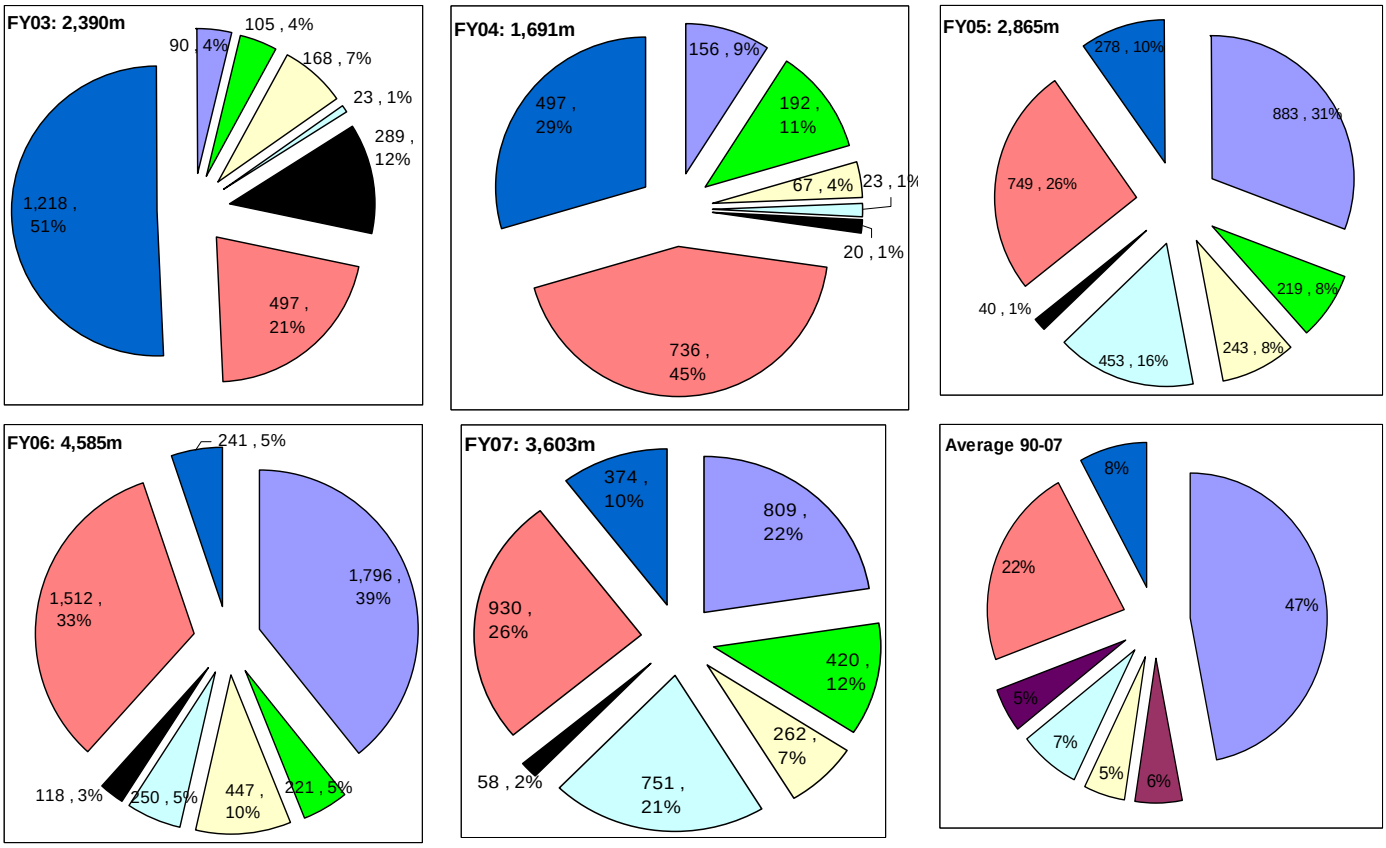
Even as the World Bank's financing in renewable energy is increasing, albeit not in line with what climate science demands, financial support for fossil fuel-based power and extraction is continuing with no sign that an urgent phase-out is needed to keep temperature increases below 2°C. Annual investment in oil and gas over the past five years (FY03-07) has, on average, made up 30% of the overall energy sector portfolio, compared with 15% between FY98-02, and 22% between FY90-97 (Figure 8). While the proportion of support to oil and gas decreased in FY07 compared to the year before, at 26% of the overall portfolio, it still stands above the overall average for FY90-07 of 22%.

Figure 8: World Bank energy sector financing, proportion of overall energy sector financing for NR, EE, hydropower, coal, and oil and gas (values in US$ for oil and gas)



The pie charts in Figure 9 give details of the World Bank's overall energy sector portfolio for the past five years. While the reduction in financial support for coal is a positive trend, the charts indicate that there is no clear sign of a substantial decrease in the financing of oil and gas, even as investment in renewable energy (mainly large-scale hydropower as explained above) is increasing.

Figure 9: World Bank financing: energy portfolio (in US$ million), FY03-07



Legend:

Power: transmission and distribution | New renewables | Energy efficiency | Hydropower >10 MW | Coal | Oil and gas | General energy sector

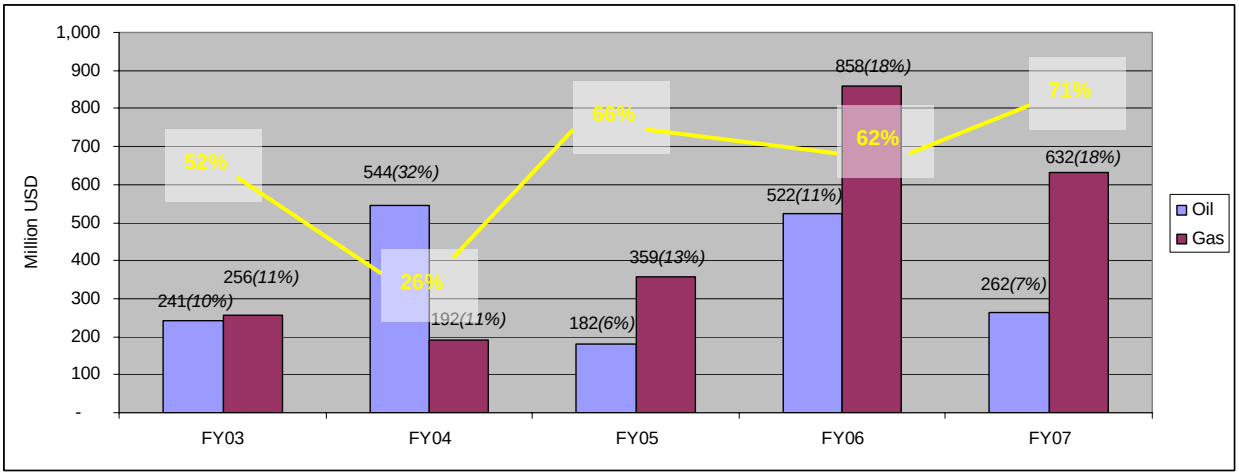
From current World Bank reports, and considering the lack of an ambitious climate and energy strategy, it does not appear that the remaining investment in oil and gas over the past few years had any specific climate objectives – for example to reduce emissions from gas flaring or to lower greenhouse gas emission from production. The recent World Resources Institute findings show only 17.3% of IDA/IBRD, and 5.4% of IFC energy project pipelines proactively integrate climate change into the project, which suggests that the majority of these investments have no specific carbon reduction aims.

The UK parliamentary committee on international development, investigating DFID's contributions to the World Bank[33], was told by the World Bank that most fossil fuel financing is from the IFC, and that over 70% of this was for gas rather than oil. With regards to extractive industries only, a recent implementation report also affirms that 60% of the IFC investment volume was gas and oil/gas blend investments, while only 3% was oil[34]. Gas is substantially more efficient and produces more energy for every kilogramme of CO_2 emitted. WWF recognises that as part of the transition to a low-carbon future, gas will play a role in global energy provision as other zero- and low-carbon emission energy sources are built up over a period of time – we call this the 'gas bubble'.

Although tables with disaggregated data for World Bank financing of oil and gas are currently not published, WWF obtained details from the World Bank on respective financing of oil and gas between FY03-07. These figures show that the proportion of financing going towards gas as opposed to oil has indeed increased in the past five years, from 52% in FY03 to 71% in FY07,

which may indicate a shift towards a 'cleaner' fossil fuel portfolio (Figure 10) – but only if one acknowledges that gas should only play a transitional part in an overarching clean energy strategy. However, it is not clear whether these results were intended or an accidental outcome of the fluctuations of fossil fuel financing. As the current energy investment framework has no clear targets to decarbonise the World Bank's overall energy portfolio, it remains to be seen whether the current shift will be sustained in FY08 and beyond.

Figure 10: WBG financing of oil versus gas (in US$ million), FY03-07



Notes: The actual dollar figures of oil versus gas financing are indicated, with the proportion this makes up of the total energy sector investment in brackets. The yellow figures indicate the proportion of gas in the total 'oil and gas' financing.

Implicit in the World Bank's response to the UK parliamentary committee was also that the Bank considers it appropriate for the IFC to continue investing in fossil fuels, because it is an institution that responds to private sector demands – and is therefore difficult to control.

The World Bank's core poverty reduction institutions of IDA and IBRD have moved away from direct financing of fossil fuels and instead now focus more on general policy and capacity building programmes.

However, the IFC has set out a vision that "people should have the opportunity to escape poverty and improve their lives"[35]. Furthermore, as a member of the World Bank Group, it is governed by member countries all of whom are party to the UNFCCC and most have signed the Convention's Kyoto Protocol. If the impacts of climate change are most likely to affect people living in poverty, it is clear that the IFC should be investing in energy projects that help countries to address these impacts rather than contributing to them.

Economic liberalisation has made the private sector increasingly influential, not least in the energy sector. As the arm of the World Bank with the most direct role in facilitating private sources of investment, it is particularly important that the IFC uses its leverage strategically to help shift the energy sector to a low-carbon future. It is no longer acceptable, given its stated vision, to help line the pockets of carbon-intensive energy industries, for whom financial incentives to invest in fossil fuels, such as the high price of oil, are already abundant.

Finally, if the World Bank wants to claim credit for IFC investments in clean energy by including them in its data as it is doing currently, it should also take responsibility for the IFC's continuing investments in oil and gas.

4. Towards a clear framework to decarbonise World Bank energy investments

The financial statistics discussed above are a crucial indicator of the climate impact of the World Bank's energy portfolio. However, what ultimately matters in terms of generating or mitigating climate change is the volume of greenhouse gases in the atmosphere. Thus calculating the increase in emissions that the Bank supports, as well as the emission pathways that are being supported, is important in determining how the World Bank is contributing to addressing climate change. WWF has therefore sought to calculate the carbon footprint of the World Bank's energy portfolio.

Financial institutions tend to take a limited approach to assessing their contribution to climate change. By and large they consider only the direct impacts of their operations, namely emissions from office activities and staff travel. This disregards the far greater implication of their actions, in terms of investments and services provided. IPCC guidance on apportioning responsibility for emissions is based on the premise of national accountability. This allows financial institutions to excuse themselves from considering their full impacts. At most, such institutions calculate emissions produced directly by a project within the host country. This approach ignores the often much greater quantity of emissions resulting downstream, for example the end use of oil products facilitated by a pipeline.

With such large volumes of finance from both private and public banks invested in fossil fuel projects, these institutions can no longer justifiably deny their contribution to global climate change. In the case of the World Bank, as a public financial institution mandated to reduce global poverty, it is particularly important to accurately assess and reduce its impacts on the climate so as to avoid compromising poverty reduction targets.

Not only does the World Bank provide a substantial volume of both loans and grants, it also markets itself as a knowledge bank setting the global agenda for appropriate models of development. It is currently not using this extensive reach and influence to carve out a global energy path that will keep global carbon emissions below dangerous levels. However, without calculating the actual emissions that World Bank financing supports, it is difficult to assess the extent to which it is falling short in meeting the challenge.

In April 2007 the World Bank announced its intention to move beyond the calculation of mere on-site, direct emissions of its projects and start calculating the wider carbon footprint of its investments and operations. WWF supports this intention, as measuring emissions resulting from its activities is a vital first step if the Bank is to understand, manage and reduce the carbon intensity of its programmes and projects.

As the Bank has yet to publish the outcome of its assessment a year on, WWF has sought to calculate an initial footprint of the World Bank, and is offering a number of recommendations based on the results of this exercise. This is intended to help the World Bank build an ambitious energy investment strategy that will live up to the challenge of avoiding dangerous climate change.

WWF fully supports the principles of common but differentiated responsibilities in tackling climate change, and does not suggest that World Bank recipient countries should take on obligatory emissions targets as a condition of World Bank investments. Instead, we aim to highlight the responsibility as well as fiduciary accountability of the World Bank as a public

institution to ensure its energy sector investments contribute to reduced climate change impacts in the future, and help support the transformation of developing country economies so that they can function and blossom in a low-carbon world.

THE WORLD BANK CARBON FOOTPRINT

Calculating the World Bank's carbon footprint is a complex task because of the diversity of activities it undertakes. World Bank support consists of a spectrum of services from offering advice to direct project lending. To calculate carbon emissions associated with an activity it is necessary to identify specific increases in emissions as a result of an action. Therefore where World Bank involvement consists of financial support for a power plant, for example, the determination of emissions is relatively straightforward. In cases such as technical support for a programme of market reforms which may lead to undefined increases in energy generation, it may be impossible to meaningfully calculate resulting emissions, at the very least not until several years after the programme is complete. To make the task achievable we have placed certain parameters on the calculation of the footprint.

Data and methodology

For the purposes of this project we considered activities involving all World Bank Group members (IFC, MIGA and IBRD/IDA). The footprint takes into account emissions from fossil fuel-based extraction, production and energy generation projects. It does not include other emissions-intensive sectors, notably transport and certain forms of infrastructure and industry, or additional emissions from fossil fuel production, such as gas flaring. Furthermore, within World Bank financing for fossil fuel extraction and energy production there are a number of projects for which emissions are very difficult to estimate based on the data made publicly available by the Bank. In particular, World Bank advice and financial support for liberalisation in the energy and mining sectors often explicitly intends that such reforms will increase overall output in these sectors. Given that emissions resulting from such increases can only be assessed afterwards and are not necessarily monitored by the Bank they were not included in our assessment.

Finally, even where World Bank financing is for specific fossil fuel projects, rather than related programmatic work, information on the outputs of these projects is not always provided or publicly available. For example, World Bank support for oil and gas exploration is likely to lead to eventual extraction and end use, which will result in large quantities of emissions if the extraction is significant. However, again it is very difficult to determine these at the time of initial project approval. In addition, the rules of commercial confidentiality prevent details of the results of many exploration and expansion activities from being published, owing to the effect it would have on the market. Although as a lender the Bank has access to this information, it currently does not disclose this publicly. WWF approached the IFC for data on projects between 2005-2008 where capacity increases such as those from oil and gas extraction were not given in the project information documents. We had still not received this information at the point of publication. However they advised that commercial confidentiality may prevent them from providing information and it was likely that at best only some figures could be given and in aggregate form. As a result, many projects – more than 20 between 2005 and 2008 alone – could not be included in the assessment of total emissions for which the World Bank is responsible.

Finally, supportive infrastructure projects in the extraction and power sectors, such as transmission lines for electricity, are not included in the footprint. Although these do not necessarily have measurable emissions, such projects do reinforce certain carbon intensive energy systems. Overall, the significant number of omissions from the calculations render the footprint an extremely conservative estimate of total emissions supported by World Bank funding.

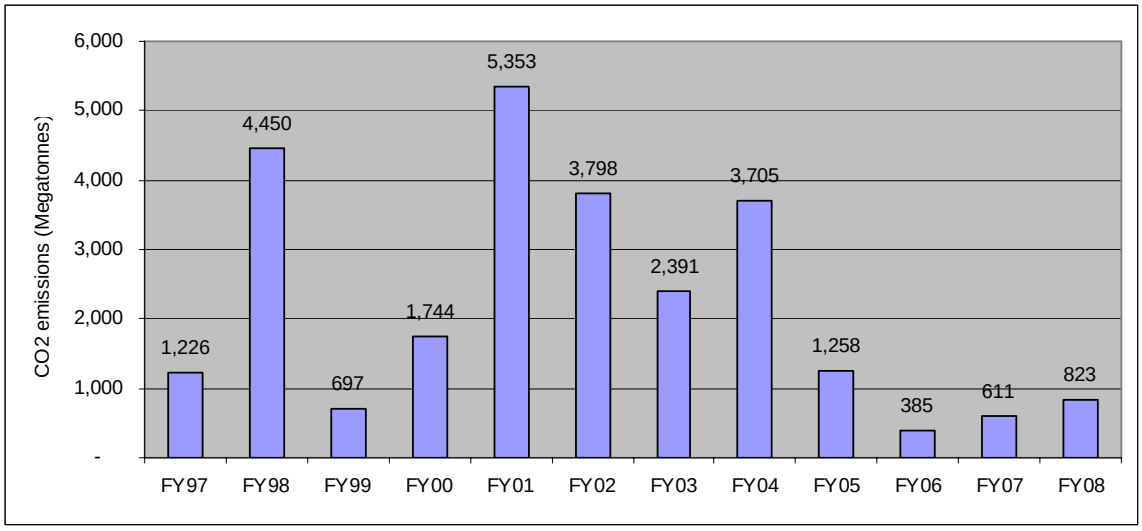
The data collection and footprint methodology we used is explained in Annex 5, and detailed information can be obtained from WWF.

The results

The results of the carbon footprint assessment are presented in Figure 11 below. Caution is needed in the interpretation of these results because, as explained above and in the methodology in Annex 5, they represent an extremely conservative and, by definition, only partial assessment. Only fossil fuel extraction and power are included – and within these there are a significant number of projects for which relevant data is not available. Data about emissions resulting from programmatic work is sparsely available, as is data for many extraction projects where releasing details of high emitting exploration and expansion activities is prevented through rules of commercial confidentiality. Finally, these emissions only relate to the energy sector investments of the World Bank, but other sectors, such as transport, infrastructure and certain types of industry also have large footprints which would increase these totals considerably.

Overall the calculations present an inconclusive picture regarding World Bank progress in decarbonising its portfolio. Our data indicates that since 1997 the World Bank has financed more than 26Gt worth of CO_2 emissions in total. If each project's lifetime emissions are attributed to the year in which it was approved, then the World Bank has financed a yearly average of just over 2.6Gt worth of emissions per year. This equals around four and a half times the current annual CO_2 emissions of the UK.

Figure 11: World Bank footprint (energy sector only)



Notes:

1) In this graph, lifetime emissions have been allocated to the financial year in which the project was approved. For example, IFC financing for the Baku-Ceyhan-Tblisi oil pipeline was approved in November 2003, so all the emissions this project will facilitate over its lifetime have been allocated to FY04.
2) Figures for FY05-08 are underestimations, because vital information on more than 20 projects in FY05-08 was missing, meaning that some project emissions could not be calculated.

On a year by year basis the results vary considerably (see Figure 11). A handful of large individual projects, particularly those in the extractive sectors, have a strong effect on the annual totals. Although our data shows that there has been a decrease in supported emissions since FY05 compared to FY01-04 (even taking into account the missing project information for some projects in FY05-08), the recent trend seems to be upwards again, and there is currently no guarantee against further peaks in coming years due to investments in large-scale fossil fuel

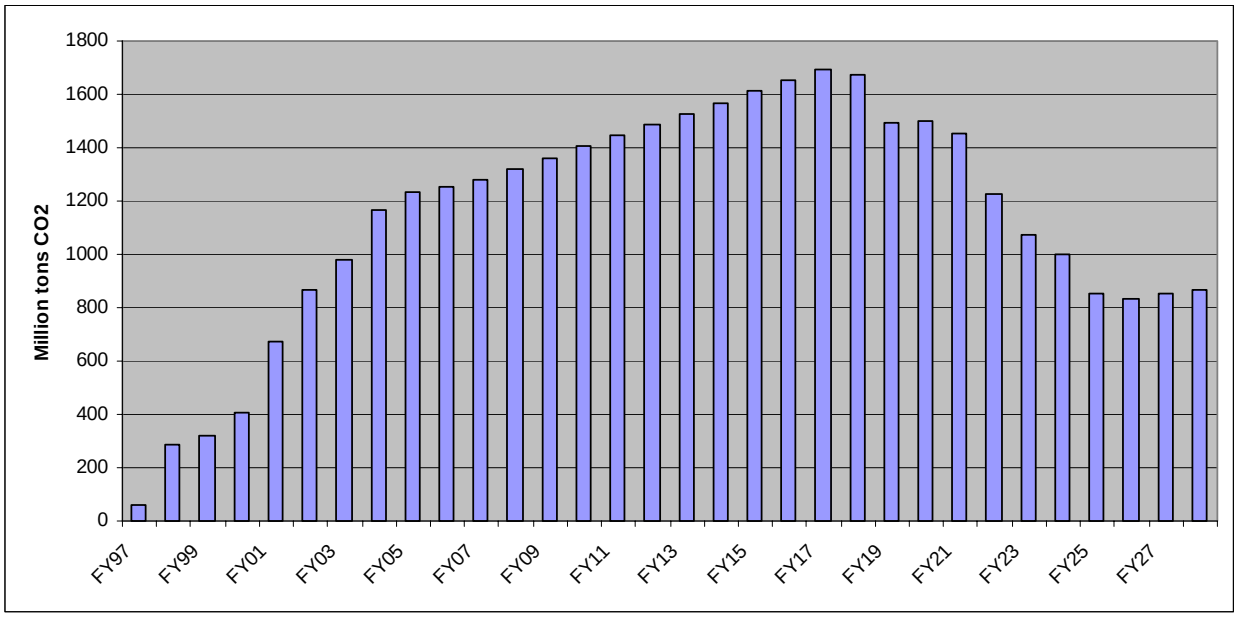
extraction. Typically a large number of projects are approved in June, the last month of the financial year. In 2008 these are not included in our calculations and it is therefore likely that the final 2008 figure will be substantially higher.

It is worth noting that a large proportion of the fossil fuels extracted in developing countries by these projects are burned in developed countries. As noted earlier, these extractive developments often do not have direct development benefits, either in terms of provision of additional energy services or reducing poverty. The World Bank could therefore reduce its carbon footprint considerably without imposing emission reduction conditions on developing countries.

With that in mind, a distinction should be drawn within a World Bank strategy for the energy sector. The strategy for extraction, or production, of fossil fuels should involve an immediate and dramatic shift away from such projects. Carbon-intensive consumption in the energy sector, primarily via power projects, in contrast, provide direct energy services that help alleviate poverty and benefit the host country. Placing stringent targets on decarbonisation has the potential to decrease country ownership and undermine the UNFCCC process. The World Bank strategy should therefore reflect the need to provide low-carbon development solutions to give client countries viable alternatives to the existing model of energy service provision. In addition the Bank must incorporate a shadow price for carbon to accurately assess the long-term impact of these projects.

Figure 12 presents the World Bank's energy sector carbon footprint in a way that is more accurate in terms of real emissions. Emissions caused are distributed over the actual years in which emissions will take place. Our data shows that, even if in future years it maintains the relatively low annual carbon footprint it had in FY08 (in comparison to FY01-03) as we assume here, the World Bank will still be responsible for very high annual emissions until at least FY17 because of emissions built up due to previous investments. The graph brings home the fact that investments at any given point in time will determine the carbon footprint many years later, because of the lifespan of most energy sector investments. It reaffirms the importance of clear strategic planning now to avoid exceeding the global carbon budget later.

Figure 12: World Bank footprint (from energy sector investments only)



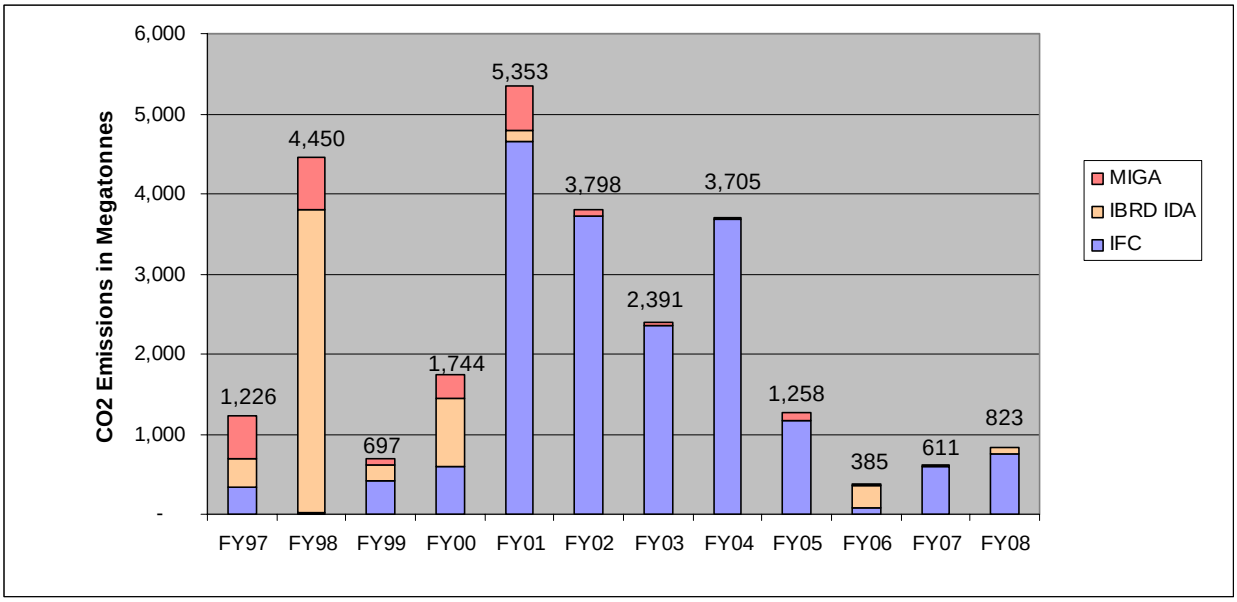
Notes:

1) *Figures for FY05 onwards are underestimations, because vital information on more than 20 projects in FY05-08 was missing, meaning that the footprint could not be calculated.*

2) *While we start with a baseline of nil in 1997, this is of course not the case as the World Bank has been investing in energy for a long time. The figure therefore gives a false perception that carbon emissions have increased from zero between FY97 and FY05.*
3) *In this graph an assumption is made that in the years after FY08, the World Bank will continue to invest in the same way as in 2008, and thus the same carbon emissions have been attributed to each year after FY08. This means that the graph continues until 2050 at the same levels of about 850 million tonnes of CO_2 per annum.*

Furthermore, our relatively conservative figures show that in a future low-carbon world in 2050, in which global greenhouse gas emissions can be a maximum of 8Gt annually (80% below emissions in 1990 of 40Gt CO_2 equivalent), the World Bank's emissions of 850Mt per year annually from FY25 onwards will make up about 10.6% of all 'allowable' emissions by 2050.

Figure 13: World Bank energy sector footprint per institution (IDA, IBRD, MIGA and IFC)



Notes:

1) *In this graph, lifetime emissions have been allocated to the financial year in which the project was approved. For example, IFC financing for the Baku-Ceyhan-Tblisi oil pipeline was approved in November 2003, so all emissions this project will facilitate over its lifetime have been allocated to FY04.*
2) *Figures for FY05 onwards are underestimations, because vital information on more than 20 projects in FY05-08 was missing, meaning that some project emissions could not be calculated.*

When looking at the relative contribution of the different institutions within the World Bank an interesting picture emerges (Figure 13). While IBRD and IDA have historically engaged heavily in direct project support for carbon-intensive energy technologies (data going back to 2004 shows that IBRD/IDA financing has been dominant in fossil fuel financing), there seems to have been much less involvement from these institutions from FY01 onwards. This is most likely due to the increased focus of IBRD/IDA financing in recent years on overarching programmatic policy and technical assistance rather than project financing.

It would be incorrect, however, to conclude that IBRD/IDA footprint therefore is approaching nil. It is often the explicit objective of these energy sector reforms to increase output. The lower footprint is therefore a reflection of the difficulty to collect correct carbon footprint information about the indirect effect of programmes such as market reforms on energy sector expansion and consequent growth in emissions, rather than an indication that the IBRD and IDA are supporting lower overall emissions. If an accurate picture of the impact of such support from the Bank is to be achieved, it is therefore vital that a strategy is developed to measure these effects.

The WWF exercise to calculate the World Bank's carbon footprint revealed interesting facts and issues which illustrate that it is not a straightforward matter to calculate footprint from financial investments – both practically, as the project information needed has often not been collected or is not public, and strategically, as there are many ways in which the World Bank can be responsible for trends in carbon emissions, without necessarily engaging in direct financing of fossil fuel extraction or power.

The fact that financing in FY04-07 for carbon intensive sectors (oil and gas) was higher than previous years, but that emissions caused were lower than those same years, could mean either that there is an actual process of decarbonisation under way, or that the carbon footprint approach is not sophisticated enough to capture the full climate impact of energy sector investments.

As there is no clear evidence that the World Bank has developed a proactive strategy to decarbonise its remaining fossil fuel investments, it may be that the latter is the case. Furthermore, the carbon footprint does not indicate to what extent the World Bank is diverting support away from carbon-intensive fossil fuels towards low-carbon solutions – a necessary move according to the UNFCCC.

5. Conclusion and policy recommendations

The effects of climate change will be felt earliest and most severely by the world's poorest countries and the natural systems on which they depend. The UK government's ambition to transform the World Bank into a more environmentally friendly institution is essential if the world is to move to a low-carbon world by 2050. DFID has a key opportunity in the World Bank's Strategic Framework on Climate Change and Development to demand that the Bank takes climate change concerns to the very heart of its current energy sector portfolio, and ensure that all its investments contribute to a low-carbon future, which will ultimately benefit development. The WWF Vision for 2050 sets a clear and realistic path to a very low-carbon future to avoid dangerous climate change, but warns that key decisions and investments need to be taken in the next five years.

Current trends indicate that the World Bank has no strategic aim yet to reduce the financing of high emitting energy technologies, the carbon intensity of its portfolio, or for moving its energy financing portfolio from fossil fuel-based energy to renewables and energy efficiency. The Clean Energy Investment Framework, which is the current Bank strategy, does not include such goals for World Bank Group investment. The only target the World Bank has set itself with regards to action on climate change is the relatively low Bonn target to increase investment in new renewable energy and energy efficiency by 20% each year until 2009.

WWF recommends that, as part of its contribution to the Strategic Framework on Climate Change and Development, DFID demands that the development of an ambitious energy financing strategy for its existing portfolio is placed at the heart of the development of the SFCCD. On the basis of this report, WWF offers the recommendations set out below to ensure that the World Bank strategy will be ambitious and thorough enough to deliver on what is potentially the greatest challenge of our time: solving the climate crisis in a way that delivers energy to all.

As part of its input to the SFCCD, DFID should demand that the World Bank:

- **Adopts an ambitious climate change energy strategy**
  The World Bank should put in place an energy finance strategy that supports a rapid transition to a sustainable low-carbon energy world, based on the absolute need to keep carbon emissions below a safe level to avoid a 2°C increase in average global temperature. This should require the end of financing for high-carbon fossil energy, deliver high efficiency energy services and rapid expansion of renewable energy, and be accompanied by transparent monitoring of emissions and emissions reductions achieved. Any remaining investment in fossil fuels must explicitly take account of their climate impacts and must fit within this wider strategy for reducing global emissions. A central pillar of such a climate change energy strategy must also be the strengthening of the overall governance and performance of the energy sector in-country, including ensuring there are robust environmental regulatory systems and enforcements in place.

- **Sets in place ambitious and measurable targets, tools and transparent reporting**
  The energy strategy should set ambitious and measurable annual and long-term targets for the reduction of its financial, technical and policy support for fossil fuels, for a massive increase in support for sustainable renewable energy, and for reducing the carbon emissions intensity from its investments (emissions per US$ financed). The

strategy should include clear climate management tools which should be complied with rigorously, and which should help align staff and management incentives with strategic climate objectives. A central tool in the development of a rigorous climate strategy is the adoption of an appropriate shadow price of carbon in project assessments. The Bank should publicly report against the climate energy strategy and on the targets on an annual basis and in clearly separated, consistent categories that are comparable over a large number of years (new renewables, energy efficiency, hydropower, oil, gas, coal, carbon reducing investments, etc).

- **Only supports socially and environmentally sustainable low-carbon technologies**
  The Bank should ensure that the 'low-carbon' technologies it promotes are environmentally and socially sustainable. Many technologies that can be pursued in the name of carbon reductions risk being socially or environmentally unsustainable. Large hydropower projects supported by the World Bank should comply with World Commission on Dams criteria and guidelines (not entirely covered by current World Bank safeguards), and the Bank should take leadership in promoting planning Strategic Environmental Assessments in dialogue with client governments. Furthermore, there should be consideration and calculation of the specific hydropower project's carbon footprint during project development, in advance of investment decisions.

- **Calculates its carbon footprint in a fully comprehensive and transparent way**
  Eventually, *all activities and sectors* should be included in the World Bank's carbon footprint. Therefore the Bank should collect and report data on emissions from all projects as a standard part of its process.

  With regard to energy sector carbon footprint, *all emissions, including downstream* emissions resulting from the projects supported, should be included. The Bank should not apply IPCC rules based on national accounting to its portfolio and all emissions resulting from its projects should be included.

  The World Bank should not use the issue of commercial confidentiality to stop project information on emissions from being incorporated. To ensure *full transparency of reporting* it should, at the very least, release aggregate figures and implement a means of allowing independent monitoring of such data.

  As IBRD and IDA financing is increasingly directed at programmatic work rather than standalone projects, the impact on emissions may be indirect – through an expansion in the energy sector. The World Bank must therefore implement appropriate assessments both before and after the project to determine the footprint of these operations.

  Finally, complete and consistent data for all World Bank projects should be published in order that civil society can independently scrutinise the accuracy of the World Bank footprint assessment.

- **Develops programmatic support that helps countries shift towards climate smart investment decisions**
  Energy projects with specific measurable emissions are only one aspect of the World Bank's influence in promoting either carbon-intensive or low-carbon development. When considering its portfolio and future investments, the Bank should evaluate all projects on the basis of whether they are likely to reinforce or to help move away from current carbon-intensive modes of development. This is not just about the need to transform the

infrastructure in energy sectors, but the need to transform an entire economy and shift it to a low-carbon pathway. Given the social cost of carbon emissions outlined in the Stern Review, pursuing current models to achieve economic growth may simply be storing up negative growth for the future. The World Bank should therefore focus on developing models of low-carbon development that present viable alternatives to current carbon-intensive options. These models should adopt an appropriate shadow price for carbon to help inform investment decisions, whether these are in agriculture, transport or infrastructure.

Annexes

ANNEX 1: WORLD BANK GROUP ENERGY SECTOR FINANCING FY90-07 (US$ MILLION)

	FY90	FY91	FY92	FY93	FY94	FY95	FY96	FY97	FY98	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	Total
Power – transmission and distribution	2,699	1,357	3,306	1,996	1,697	2,721	3,267	2,768	1,740	1,057	1,340	1,894	1,944	90	156	883	1,796	809	31,520
New renewables	53	2	56	227	300	59	47	336	16	239	445	26	169	105	192	219	221	420	3,132
Energy efficiency	-	265	54	10	59	148	360	56	356	26	295	193	67	168	67	243	447	262	3,075
Hydropower >10MW	-	150	161	938	186	317	819	15	461	-	320	-	181	23	23	453	250	751	5,048
Coal	31	428	27	40	28	22	557	255	902	254	51	116	194	289	20	40	118	58	3,430
Oil and gas	430	1,799	873	1,087	1,429	910	427	407	601	500	207	644	292	497	736	749	1,512	930	14,030
General energy sector	24	165	36	215	38	98	19	3	74	251	176	175	55	1,218	497	278	241	374	3,937
Total	**3,237**	**4,166**	**4,513**	**4,513**	**3,737**	**4,275**	**5,496**	**3,840**	**4,150**	**2,327**	**2,834**	**3,048**	**2,902**	**2,390**	**1,691**	**2,865**	**4,585**	**3,604**	**64,172**

Source: Clean Investment Progress Report, April 2005 (Table F2, p112); Clean Investment Progress Report, September 2007 (Table 2, p8); Improving Lives: World Bank Group Progress Report on Renewable Energy and Energy Efficiency in Fiscal Year 2006 (Annex 2); personal communication IFC staff (June 2008), see Annex 5.

ANNEX 2: WORLD BANK GROUP LIFETIME CARBON EMISSIONS FINANCED, FY97-07 (MT)

Fiscal Years	**FY97**	**FY98**	**FY99**	**FY00**	**FY01**	**FY02**	**FY03**	**FY04**	**FY05**	**FY06**	**FY07**	**FY08**	**Total**
CO_2 emissions (Mt)	1,225.9	4,449.7	697.1	1,744.5	5,353.2	3,797.8	2,391.2	3,705.0	1,257.9	384.9	610.6	823.3	**26,441.3**

Source: Calculation by WWF, based on project information from World Bank projects and using the Greenhouse Gas protocol for conversion rates. Please contact WWF to obtain a full explanation of emissions calculations.

ANNEX 3: WBG FINANCING OF NEW RENEWABLE ENERGY AND ENERGY EFFICIENCY: THE BONN COMMITMENT

WBG (US$ million)	**FY04**		**FY05**	**FY06**	**FY07**	**Total**
New renewables (NR)	192		219	221	420	860
Energy efficiency (EE)	67		243	447	262	951
Total NR-EE	259		462	668	682	**1,811**
Bonn Commitment			*+20%*	*+20%*	*+20%*	
20% from baseline (US$209m)		209	251	301	361	**913**
What an actual 20% increase per year would look like			261	554	801	**1,617**

ANNEX 4: CARBON FOOTPRINT METHODOLOGY USED BY WWF

Data collection
We calculated the footprint of World Bank energy sector investments between 1997 and 2008. Project data between 1997 and 2004 was based on information compiled by the Sustainable Energy and Economy Network (SEEN), which performed a similar exercise to calculate the Bank's carbon footprint[36]. WWF collated and analysed similar project data published by the World Bank for projects up to and including May 2008. To calculate the emissions resulting from these projects we used conversion factors recommended by the IPCC[37]. Because the SEEN emissions data was calculated before the IPCC methodology was available, we recalibrated the SEEN data based on these factors, so that the full data set is consistent.

Calculation methodology
We calculated the footprint in terms of carbon dioxide (CO_2) emissions rather than carbon equivalent (an alternative measure that is often used)[38]. We only assessed the CO_2 resulting from a project. Other greenhouse gases, which typically make up a very small proportion of emissions from fossil fuel combustion, but have higher global warming potential, are not included.

In order to calculate the end use, or indirect, emissions of the products from fossil fuel extraction the methodology assumes, albeit simplistically, that all fossil fuels extracted will be used for stationary combustion in the energy industry. It also presumes that all reserves activated with World Bank assistance will ultimately be extracted and burned. Given that this calculation is for an institution rather than a country, all end use emissions are calculated – not just those released within the borders of the project's host country. However, the methodology adopts an IPCC Tier 1 approach[39], using a default emissions factor that does not account for the country origin of fuel or any technology differences that may affect the level of emissions for a particular project, as only some of the data required for more specific calculations are captured in World Bank project information.

The assumption that all extracted products will be used in stationary combustion is certainly simplistic, particularly in the case of oil, which is predominantly used for transportation. However, data on final use from extraction projects is rarely available. As the relative emissions between stationary and mobile combustion are not substantially different[40] this approach in fact admits fewer assumptions than attempting to estimate proportions of oil products that will be used in different forms of transport, particularly given the higher global warming potential of gases burned in air transport at high altitudes.

Additional assumptions built into the methodology are that projects operate at full capacity for a lifetime of 20 years, beginning at the time financing was approved. While a full capacity approach would overestimate the emissions of a project, the 20-year lifetime is extremely conservative (for example, the BTC oil pipeline has an estimated lifetime of 40 years). Thus, on balance, the calculation remains reasonably conservative. Where data is provided detailing a shorter lifetime of projects, or total reserves are stated, the calculation is done on this rather than a 20-year lifetime basis.

In any one project, a number of financial institutions may be involved. It is difficult, if not impossible, to determine which portion of the financing was the catalyst for the project. World Bank support, however, is often cited as important for attracting other forms of public and private finance for a project. For its footprint calculations we understand that the World Bank is adopting the approach that its financing is the catalyst for projects, and thus plans to attribute 100% of the emissions of any project to the World Bank's footprint, irrespective of the

proportion of World Bank financing involved. WWF has therefore taken the same stance in our calculations. Furthermore, while World Bank institutions offer different forms of support (loans, grants, guarantees), we have treated all financing as equivalent, as all are assumed to be critical catalysts for any project.

It is possible – and there are several examples in the data set – for extraction projects financed by the Bank to provide the raw material for power generation projects that also have World Bank involvement. We have therefore excluded power generation projects where there is a likelihood that the fuel supply will have come from another World Bank project, to avoid double counting. Double counting is also a potential problem where the Bank has provided additional financing facilities for the same project in subsequent years. Unless this has been for expansion of capacity, the emissions from these projects have been excluded so that emissions are only attributed once. Where more than one institution has provided support to a project, the emissions have been attributed to the institution with the largest proportion of financing.

Finally, as we assumed that projects have a lifetime emissions span of 20 years, emissions have been spread over the 20 years after a project has been approved and financed. In this way, a more realistic picture is created of the level of emissions the World Bank is responsible for at any one point in time. We have used financial years instead of annual years, to ensure comparability with financing figures.

ANNEX 5: WBG FINANCING SUPPORT IN THE ENERGY SECTOR (IN US$ MILLIONS), FY03-05

WBG Financing Support in the Energy Sector
(in US$ millions)

Project type	FY03	FY04	FY05	FY06	FY07
New RE/EE	270	286	445	892	682
Large Hydro	23	23	453	250	751
Transmission and Distribution	90	156	883	1796	809
Oil, gas and coal production/other	325	496	689	1094	628
Gas	*162*	*148*	*351*	*598*	*391*
Oil	*163*	*348*	*154*	*439*	*159*
Coal	*0*	*0*	*0*	*0*	*47*
Other (1)	*0*	*0*	*184*	*66*	*31*
Thermal generation	461	260	100	521	360
Gas	*94*	*44*	*8*	*260*	*241*
Oil	*78*	*196*	*28*	*83*	*103*
Coal	*289*	*20*	*40*	*118*	*11*
Other (1)	*0*	*0*	*24*	*60*	*5*
Other energy	1218	497	278	241	374
Grand Total	**2,388**	**1,716**	**2,848**	**4,794**	**3,604**
Total Low-carbon	365	351	1,221	1,742	1,434
Total Access	813	527	1,067	1,008	1,239

Notes
(1) Projects within this category that cannot be classified to a particular fuel and including technical assistance
(2) Low-carbon: RE/EE and higher effiiency uses of energy incuding waste fuelled power
(3) Access: Projects aimed at increasing access to electricity and other energy
(4) Other Energy: Projects where policy support is aim , or multiple components in broader program s that cannot be prorated

Source: information provided courtesy of WBG (June 2008)

END NOTES

1 www.independent.co.uk/news/business/news/brown-says-radical-changes-needed-to-imf-and-world-bank-774364.html

2 IPCC. 2007. Intergovernmental Panel on Climate Change Working Group II Fourth Assessment Report.

3 DFID. 2006. *Eliminating world poverty: making governance work for the poor*, Department for International Development, London.

4 'World Bank', 'Bank' or 'World Bank Group' in this report refers to all institutions of the World Bank Group (IDA, IBRD, MIGA and IFC). Where a particular institution is concerned, this is specified by name.

5 The Clean Energy Investment Framework is an outcome of the G8 meeting at Gleneagles in July 2005, when the Bank was charged with proposing an investment framework for clean energy and development. The Framework intends to accelerate investment into clean energy so that developing countries can meet energy demands for development and poverty alleviation in an environmentally sustainable way. See http://go.worldbank.org/7W3DZHKNF0

6 *Meeting the Challenges of Global Development, A Long Term Strategic Exercise (LTSE) for the World Bank Group, WBG,* October 2007. The four areas of challenge outlined, to which the World Bank is encouraged to respond strategically 'for global inclusiveness and sustainability', are: 'Sub-Saharan Africa, fragile states, inclusiveness among and within middle-income countries, and global public goods' (page 7). The Global Public Goods outlined are: environmental commons, communicable diseases, international financial architectures, trade, knowledge for development, and regional public goods.

7 Global Public Goods (GPG) is a term used to refer to public goods of global proportion, for example, a clean environment, health, knowledge, property rights, peace and security. The global climate is a pre-eminent example of a global public good.

8 The Strategic Framework on Climate Change and Development is being developed for adoption by the World Bank board in September 2008.

9 *Towards a strategic framework on climate change and development for the World Bank Group*. Concept and Issues Paper. March 2008, page 14.

10 *Stern Review on the Economics of Climate Change*, HM Treasury, October 2006.

11 IPCC. 2007. *Intergovernmental Panel on Climate Change Working Group II Fourth Assessment Report*.

12 Climate Analysis Indicators Tool (CAIT) Version 5.0. Washington, DC: World Resources Institute, 2008 (in Towards a *SFCCD for the World Bank Group*, Concept and Issues paper, March 2008).

13 *Correcting the world's greatest market failure: Climate change and the multilateral development banks*. WRI, June 2007. Criteria for 'integration of climate change' are: 1) greenhouse gas emissions accounting, 2) identification of lower emissions alternatives, 3) climate specific indicators/targets, 4) consideration of incremental cost and financing.

14 Total financing of the oil and gas sector alone in FY05-07 was US$3,191 million. This does not include financing of the 'general power sector' (energy transmission, distribution and generation, usually for large-scale fossil fuel-based projects). Financing for the power sector between FY05-07 was US$3,488 million.

15 *Climate Solutions: WWF's Vision for 2050*, WWF International, 2007.

16 Energy Foundation, *The True Social Cost of Coal: The external cost for the exploitation and utilization of coal in China: a preliminary study*, 2006.

17 SEEN recently calculated that 52 out of 128 fossil fuel extraction projects were geared towards exports for the global market place. In the oil sector specifically, over 82% goes to projects that export to the North (*Wrong turn from Rio*, SEEN, 2004).

18 Extractive Industries Transparency Initiative website: http://eitransparency.org

19 The Extractive Industries Transparency Initiative (EITI) is a coalition of governments, companies, civil society groups, investors and international organisations that supports improved governance in resource-rich countries through the verification and full publication of company payments and government revenues from oil, gas and mining. It is supported and endorsed by the World Bank.

20 The Final Report of the Extractive Industries Review, *Striking a better balance*, December 2003.

21 *World Bank management response to the Extractive Industry Review*, September 2004.

22 Even in the SFCCD concept and issues paper (2008), the World Bank seems to indicate that it may not change tack, by reaffirming that "a simplistic approach of withdrawal from 'carbon intensive' sectors, such as thermal power or transport, will not serve either climate change or development agendas" (page 12).

23 *Towards a strategic framework on climate change and Development for the World Bank Group*. Concept and Issues Paper. March 2008 (page ii).

24 *Implementation of the Management Response to the Extractive Industries Review* (February 2008).

25 At the International Renewable Energies Conference in Bonn, June 2004, the World Bank Group announced a commitment to scaling up lending for renewable energy and energy efficiency (referred to hereafter as 'the Bonn Commitment'). The key elements of the Bonn Commitment include ensuring that renewable energy and energy efficiency are seen as economically viable and essential ingredients in the energy choices of developing countries, increasing commitments for new RE and EE by at least 20% annually over the next five years (FY05-FY09), and leading a Renewable Energy and Energy Efficiency Financing and Policy Network for developing countries.

26 *Implementation of the Management Response to the Extractive Industries Review* (February 2008); and in *Towards a strategic framework on climate change and development for the World Bank Group*. Concept and issues paper. Consultation draft, 27 March 2008.

27 All financial data in this report is based on World Bank information: *Clean Investment Progress Report*, April 2005 (Annex 1: Table F2, p112); *Clean Investment Progress Report*, September 2007 (Table 2, p8); *Improving Lives: World Bank Group Progress Report on Renewable Energy & Energy Efficiency in Fiscal Year 2006 (Annex 2)*; personal communication IFC staff (June 2008).

28 In FY07, US$751 million out of US$1,433 million for renewable energy was for large hydropower, or just over 50%.

29 The member organisations of the World Bank Group are the International Bank for Reconstruction and Development (IBRD); the International Development Association (IDA); the International Finance Corporation (IFC) and the Multilateral Investment Guarantee Agency (MIGA). A fifth member organisation is the International Centre for the Settlement of Investment Disputes (ICSID), but the latter does not make financial investments.

The IBRD focuses on middle income and creditworthy poor countries, while IDA focuses on the poorest countries in the world. They both provide low-interest loans, interest-free credit and grants. IFC focuses on assisting private sector investments in developing countries. MIGA provides guarantees or political risk insurance to foreign investors against loss caused by non-commercial risks in developing countries.

30 The Global Environment Facility (GEF), established in 1991, helps developing countries fund projects and programmes that protect the global environment. GEF grants support projects related to biodiversity, climate change, international waters, land degradation, the ozone layer, and persistent organic pollutants. The World Bank is one of the implementing agencies, together with the United Nations Development Programme and the United Nations Environment Programme.

31 World Commission on Dams website: www.dams.org

32 US$209 million is the average of funding for NR and EE in the three years previous to 2004.

33 DFID and the World Bank, Sixth Report of Session 2006-08. Parliamentary Inquiry of the International Development Committee. www.publications.parliament.uk/pa/cm200708/cmselect/cmintdev/67/67.pdf

34 Implementation of the Management Response to the Extractive Industries Review (February 2008).

35 www.ifc.org

36 *A wrong turn from Rio, the World Bank's road to climate catastrophe*, SEEN 2004. SEEN kindly provided us with the original project database on which emissions calculations were based.

37 The conversion factors for units of measurement such as energy, weight and mass were the figures from the International Energy Agency.

38 Several aspects of the methodology reflect the approach taken by SEEN.

39 In its guidance for countries to calculate their emissions the IPCC offers three options (Tiers) for methodologies depending on the quality of information available. The Tier 1 approach is the most simplistic. This provides standards emissions factors for fuels that do not account for the country origin of the fuel or the technology that will be used to process or consume these fuels. Tiers 2 and 3 are progressively more specific. Fossil fuels extracted in different geographical locations are not identical. The emissions they produce when burned are therefore slightly different. In addition the type of technology, for example combined cycle versus simple cycle power plants, will also have an effect on emissions generated. In terms of the World Bank calculation, accumulating all the data for fuel origin and technologies involved would be incredibly difficult. Therefore we have taken the Tier 1 approach. This approach is unlikely to have a significant impact on our data given the wide variety of locations and technology types the Bank supports. The Tier 1 'average' approach is therefore probably fitting for this task.

40 See IPCC 2006 *Guidelines for National Greenhouse Gas Inventories* for emissions factors used and the relative emissions from transport and stationary combustion www.ipcc-nggip.iges.or.jp/public/2006gl/index.html