

Chapter on International Development and Trade Policies and Programs related to climate change

BY Daphne Wysham, October 19, 2007

Overview

The next president of the United States must reduce the output of heat-trapping greenhouse gases from the U.S. and, through whatever tools she or he has available including development and trade policies, from large developing countries like China, India, Mexico and Brazil. Inaction can only further endanger the environmental and political stability of the world.

The task is hard enough in the United States. While countries like The Netherlands, Britain, Germany and France have made commitments to cut their emissions from 50 to 80 percent over the next 40 years, the U.S. federal government has avoided making any firm commitments for greenhouse gas reductions. Despite notable exceptions at the state and regional level, the U.S. contribution to greenhouse gas emissions and its failure to institute even obvious mitigation measures at the federal level has been noted to its detriment globally. In addition, our global trade and investment strategy is incoherent: On the one hand, we are urging developing countries to take action on climate change and, on the other, making it all but impossible—via our trade and development policies—to do so.

The next American president has an opportunity to turn this around and move to a position of global climate leadership. The U.S. can spearhead a global transition to clean energy which would in turn help build new economic drivers both in the U.S. and in the developing world. Impoverished countries, less vulnerable to the vicissitudes of dwindling non-renewable energy prices, could become strengthened trading partners. Clean energy policies could help jumpstart the renewable energy industry into a new and major engine of growth for the global economy. These changes could lead to a new era of global cooperation and progress. The solutions are readily available but require a bold leader to implement them.

These solutions would, among other things: address the potential imbalance that current climate regimes may give to countries with no caps on their emissions; generate revenue for investment at home and abroad in clean energy; build greater good will among developing countries crushed by the burden of decades of debt; and help develop a new institutional structure to address the massive technical and financial expertise that will be necessary to address the climate challenge.

The problem

The growing demand for energy in the developing world is almost entirely fed by conventional sources. China recently surpassed the United States as the number one greenhouse gas emitter on the planet. Indeed, two-thirds of growth in energy demand over the next 25 years will come from developing countries. The share of developing country energy demand is projected to jump from 37 percent today to nearly 50 percent, with over \$8 trillion invested in developing countries by 2030. Unless a low-carbon energy infrastructure is put in place today in the developing world, fossil fuels will continue to account for around 80 percent of energy consumed globally in 2030.

To bring climate change under control, we must balance the world's annual carbon emissions budget at roughly 2 billion tons of carbon per year, down from our current level of 7.5 to 8 billion tons today, far sooner than 2050. This can only be achieved if financial and trade inducements are made now to bring Southern countries on board such an agreement.

Problem #1: U.S. development dollars are financing climate change when they should be financing a transition to clean energy

Much of the U.S. development agenda is de facto currently carried out through the various development banks, among them World Bank, the Inter-American Development Bank, the European Bank for Reconstruction and Development, the African Development Bank, the Asian Development Bank, the Overseas Private Investment Corporation, and the U.S. Export-Import Bank. Although these institutions give lip service to climate-sensitive goals, they rarely invest in the sorts of clean energy and energy efficiency projects that would allow developing countries to leapfrog dirty fossil fuels and help drive a clean energy revolution globally. Instead, U.S. policy-makers and leaders at these development banks and export credit and investment guarantee agencies have done the opposite.

The United States government wields disproportionate influence over the policies and programs of the world's most important development agency, the World Bank. For decades, the World Bank has privatized and opened up developing countries' fossil fuel sectors for export in order to satisfy the growing import needs of Northern industrialized countries. Beginning in 1992, at the Rio Earth Summit, over the years, roughly once every two weeks, the World Bank's directors approved a project that would foster fossil fuel infrastructure development and consumption. The total amount approved from 1992-2004: \$28.5 billion, averaging a little more than \$2 billion a year¹. The estimated lifetime emissions from these projects is 43.4 billion tons of CO₂, almost half of which involve oil exports for the global marketplace.

The ratio of Bank financing for renewables and energy efficiency remains low. Using the World Bank's own figures for fiscal year 2005, "new" renewables and energy efficiency made up only 10 percent of the Bank's overall lending portfolio. At the International Finance Corporation, the private sector lending arm of the World Bank, renewables and energy efficiency only comprised 2 percent of their energy portfolio. Even these figures are artificially inflated due to the fact that over half of them involve large hydropower projects, which, in tropical countries, can produce as many greenhouse gas emissions from methane as fossil fuel power plants.²

Recent studies show the World Bank Group's investments in fossil fuels rose by 93% between 2005 and 2006. Simultaneously, their investments in renewables (including large hydropower) and energy efficiency investments rose by 46%.³

While helping to keep the fossil fuels flowing to the rich world, these projects have hardly made a dent in the energy needs of the 1-2 billion poor across the world that subsist on energy from wood, crop waste, and animal dung.

In addition, this fossil fuel investment reaches far beyond the specific projects the World Bank finances. It sets a standard for all other fossil fuel financiers: regional development banks, export credit agencies, and private banks. Over 90 percent of private banks that

1 See "Wrong Turn from Rio: The World Bank's Road to Climate Catastrophe," SEEN/IPS, 2004, http://www.seen.org/PDFs/Wrong_turn_Rio.pdf

2 "How the World Bank's Energy Investment Framework Sells the Climate and Poor People Short," by IPS et al, Sept. 2006. See: http://www.seen.org/PDFs/Energy_Framework_CSO.pdf

3 Bank Information Center: "World Bank Group Financing for Extractive Industries Development," By Heike Mainhardt-Gibbs, 2006.

provide project finance in the developing world have signed the so-called Equator Principles,⁴ which essentially means they follow the World Bank's environmental and social guidelines. So getting the World Bank to take meaningful action on climate change is not an academic exercise: It potentially affects about 90 percent of all private sector project finance in emerging markets and all of the public banks that also look to the World Bank for guidance on their investments and guidelines.

In the absence of World Bank leadership on climate change, a host of other development banks and export credit and investment guarantee agencies are also using "development" dollars to finance fossil fuel extraction, transport, and combustion projects in the developing world, and not calculating their climate impact.

For example, two U.S. export credit and investment guarantee agencies, the U.S. Export-Import Bank and the Overseas Private Investment Corporation, together financed over \$23 billion in oil, gas and coal projects around the world between 1992 and 1998; these projects would in turn release the equivalent of 29 billion tons of CO₂, a figure slightly greater than all CO₂ emissions for the planet in 1996⁵. This investment in fossil fuels far outpaces that of many multilateral development banks such as the European Bank for Reconstruction and Development (\$1.2 billion in fossil fuel finance and 6.5 billion in CO₂ emissions from 1992-97) and Inter-American Development Bank (\$6.3 billion and 3 billion tons of CO₂ from 1992-2004) and rivals that of the World Bank (\$13.6 billion in fossil fuel finance and 36 billion in CO₂ emissions from 1992-98.)

Similar patterns are emerging in other countries. For example, in fiscal year 1993, Japan's Official Development Assistance (ODA) expenditures for financing fossil fuel-related projects were about four times more than the amount spent for energy conservation-related projects. Over the next decade, the expenditure gap between these types of projects widened: In fiscal year 2002, the ratio of fossil fuel finance to energy efficiency projects grew to a ratio of seven to one⁶. Over 2.2 billion tons of carbon dioxide (CO₂) will be released from Japanese energy ODA projects approved during fiscal years 1993-2002, over their lifetime of operations.

The administration that takes office in 2009 should take the lead in joining with the nations of the European Union and others in switching America's development aid away from carbon-based energy sources and toward efficiency, conservation and non-carbon-based, renewable energy technologies.

Problem #2: United States development policies are encouraging energy-intensive exports.

Our development dollars channeled through our IFIs and ECAs are promoting a global system of trade and development that encourages export-oriented development. Yet export-based production inherently requires more energy use than does production for smaller

⁴ The Equator Principles banks have signed on to a set of social and environmental guidelines developed by the World Bank Group for their project finance. See www.equator-principles.com

⁵ "OPIC, Ex-Im and Climate Change: Business As Usual? An Analysis of U.S. Government Support for Fossil Fueled Development Abroad, 1992-98," SEEN/IPS, FoE, etc. 1999, <http://www.seen.org/pages/reports/oeordonl.shtml>. OPIC announced in July 2007 that it was going to begin to calculate its greenhouse gas emissions, and cap them at a certain level, reducing the cap each year. However they are following the lead of the World Bank in only calculating "direct" emissions—i.e., those emissions produced in the construction of a project (such as a pipeline), not the actual (or "indirect" emissions) that will be released once the product (oil, gas or coal) makes it to market.

⁶ Japanese Official Development Assistance to the Energy Sector Development; An Analysis of Its Financing for Fossil Fuel and Energy Conservation Projects, by Hideka Yamaguchi, Daphne Wysham, Jim Vallette, 2002.

domestic markets. Whether drawn from renewable or non-renewable sources, the scale of operation tends to raise the overall demand for energy. While trade theory posits that cross border competition allows the most efficient producers to achieve greater economies of scale (thus optimizing energy-efficient production), the reality is that — since climate costs are almost always externalized from today's energy prices — expanding production for exports only exacerbates the massive market failure of climate change, resulting in false efficiencies and artificial competitiveness.

Canadian trade lawyer Steven Shrybman has attempted to outline a few of the energy dimensions involved in export-oriented development models¹:

- **Production for global markets** requires greater inputs of energy, whether growing soybeans or making plastics, because producers are competing to serve more consumers than local or domestic markets can bear.
- **Processing** in the global marketplace uses additional amounts of energy. Whether turning potatoes into French fries or making computers, industries disperse their manufacturing operations worldwide to global assembly lines where components are shipped back and forth tens of thousands of miles before the product is ready for sale.
- **Packaging** that is both attractive to the customer and durable for long-distance shipping means the increased use of cardboard, plastics and styrofoam, all of which require more energy to produce, apply, transport, and dispose of. Limited or no packaging is more common in local markets, particularly for agricultural goods.
- **Distribution** of products across continents and oceans uses up more energy than distribution to local or regional markets. And as total volumes of trade increase, the amount of energy needed to transport products also rises. Ocean traffic, which uses among the dirtiest of fuels called “bunker fuel,” increased by one-third during the year 2005. Cargo trucking and air travel is also rising.

Problem #3: U.S. and International Trade Policy Trumps Climate Policy

The next president needs the leadership that upgrades climate change commitments from unenforceable commitments to enforceable ones.

The UN Framework Convention on Climate Change (UNFCCC) and its Kyoto Protocol are clear: signatory nations must conform to world trade rules. Technically, the WTO allows exceptions for laws that are "necessary to protect human, animal or plant life and health." However, this has proved virtually useless, since WTO tribunals have interpreted the language to mean that laws must represent the "least trade-restrictive ." way to achieve the environmental goal. According to Mitsuo Matsushita, who served on a tribunal that ruled against the US Clean Air Act in the World Trade Organization's first dispute resolution case in 1996, governments have already empowered the WTO to “allow Member Nations to challenge almost any measure to reduce greenhouse gas emissions enacted by any other Member.”

Thus, as climate and energy policies begin to attempt to influence global markets, they are increasingly being viewed as “illegal barriers to trade.” Examples of violations of WTO rules that would help us achieve climate stability, but which are punishable by trade penalties, include strengthened standards for energy efficiency, renewable fuel portfolio standards, taxes and/or incentives for alternative energy, and restrictions on the trade in carbon credits, among many others. Although governments need to set standards that send clear markets signals to influence the everyday decisions of energy investors and consumers, the World Trade Organization (whose 150 member nations comprise over 90 percent of global commerce) presides over dozens of overlapping trade agreements whose stated purpose is to reduce the overall role of governments in shaping our economies.

Specific examples of climate policies threatened by WTO rules include the following:

- European Ministers of Environment and Industry proposed a “Kyoto tax” on imports from countries without carbon controls; the idea was dismissed out of hand by European Trade Commissioner Peter Mandelson as a violation of WTO rules.⁷ Without some fair way to adjust carbon costs of imports, domestic industries will continue to oppose strong action due to unfair competition from countries with no climate regime.
- One of the United States’ most effective measure for reducing greenhouse gas emissions would be to approve stronger standards for vehicle fuel efficiency now being considered by Congress. However US fuel efficiency standards (CAFÉ) were already deemed “discriminatory” against European auto exports by a 1994 GATT panel.⁸
- The U.S. and Brazilian governments recently agreed to cooperate on establishing new rules in the WTO to govern the trade in biofuels, possibly prohibiting the use of any “sustainability criteria” now being mandated by Europe and some US states.
- The European Biofuels Board is calling on Mandelson to launch a challenge against the US biofuels program as a violation of WTO rules prohibiting subsidies for any “specific” product, even if they are renewable fuels.⁹ Such a prohibition could result in more sustainable fuels—such as microalgae—being discriminated against.

⁷ “EU trade chief to reject ‘green’ tax plan,” Financial Times, by Andrew Bounds, www.ft.com/cms/s/9dc90f34-8def-11db-ae0e-0000779e2340.html, December 17 2006.

⁸ “United States- Taxes on Automobiles: Report of the Panel,” General Agreement on Tariffs and Trade, September 29, 1994. [www.law.georgetown.edu/iel/cases/US-Automobiles\(abr\).pdf](http://www.law.georgetown.edu/iel/cases/US-Automobiles(abr).pdf)

⁹ European Biodiesel Board letter to European Trade Commissioner, Peter Mandelson, “Re: International trade of biodiesel-unfair competition from “B99” subsidized exports from US and Argentinean Differential Export taxes (DETs), March 19, 2007.

- Carbon trading in a globalized market was a top G8 priority for the former British Prime Minister Tony Blair.¹⁰ European Union and World Bank officials have endorsed such a market, despite early signs of corruption and other flaws, noting that it must conform with world trade rules.
- The US has formally submitted “climate protection services” under trade in services offer to WTO, which, if adopted, could open to legal challenge any geographic or quantitative restrictions or offsets or exclusions of monocultures or genetically engineered trees, or to limit market share of certain industries.¹¹
- Border tax adjustments for climate are also at risk from WTO, according to legal defense arguments developed by Duke University.¹²

While existing world trade rules already pose multiple obstacles for addressing climate change, current efforts to expand trade policy’s powers over energy via the WTO’s Doha Round could result in even greater constraints on governments to shift to socially stable and ecologically sustainable energy supplies. The United States, the European Union, and other major energy importers are now pressuring energy-exporting nations to open their markets for “energy services” to allow companies to enter without limitations on what type of energy resources can be exploited or what type of technology can be used.¹³ The US Trade Representative calls energy services a “breakthrough” sector that must be delivered to complete the Doha Round. Nigeria, Indonesia, Brazil, and perhaps others, are preparing to submit formal offers to liberalize their energy services.

In sum, our current approach to trade policy can promise neither climate protection nor energy security because the mission is to reduce the role of government. However, what is needed now are explicit government measures that send market signals to investors and consumers that redirect their decisions about what sort of energy to produce and consume at a rate and scale that respects ecological limits.

Problem #4: Carbon Trading is Interfering with the Task of Clean Energy Finance

The World Bank has estimated that the cost of adapting to climate change will range from anywhere from \$10 to \$40 billion annually. Others suggest this is a vast underestimate, and

¹⁰ Berlin Speech given by Tony Blair on climate change. www.britischebotschaft.de/en/news/items/070603.htm, 3 June 2007.

¹¹ Revised U.S. Services Offer to the WTO, www.ustr.gov/Trade_Sectors/Services/2005_Revised_US_Services_Offer/Section_Index.html?ht=;

¹² US Federal Climate Policy and Competitiveness Concerns: The Limits and Options of International Trade Law, Joost Pauwelyn, Law Professor, Duke University, April 2007.

¹³ “The Other Oil War: Halliburton’s Agenda at the WTO,” by Victor Menotti, IFG, www.ifg.org/reports/WTO-energy-services.htm June 2006.

that adaptation budgets should be assumed to start at \$50 billion annually¹⁴. Estimates show that less than 1% of all electricity investments would be required to provide universal access to modern energy for the poorest who are not yet served.¹⁵ The current revenue allocation for adaptation, by some measures a more urgent task than the revenue for universal access to energy, is pitifully small—measured in millions, not billions of dollars. Meanwhile, a mechanism which, it is claimed, might help catalyze a clean energy revolution globally, carbon trading, is failing to meet even these targets.

The World Bank Group is among those playing a leading role in facilitating the trade in carbon under the Kyoto Protocol¹⁶. When it was first proposed, this role was decried by officials from the US Treasury Department as reflecting a clear conflict of interest; they suggested that the Bank could be far more effective in slowing greenhouse gas emissions if it were merely to implement its own energy efficiency guidelines.

However, supporters, including the World Bank, claim carbon trading allows the invisible hand of the market to do what the “command and control” approach to regulation of greenhouse gas emissions can not; that is, meet and even exceed expectations of emissions reductions. Investors predict that carbon could become one of the largest markets in the world, with a trading volume of \$60 billion to \$250 billion by 2008.¹⁷ The carbon market had reached a volume of \$30 billion in 2006, three times greater than the previous year¹⁸. This new marketplace is relatively unregulated.

The EU Emissions Trading System has thus far been a failure: the emissions cap was set too high, meaning actual GHG emissions *increases* took place; furthermore, polluting industries like coal-fired and nuclear power industries profited, rather than renewable energy developers, while individuals paid a higher price for power under the scheme.¹⁹

Domestically, the Northeastern states’ Regional Greenhouse Gas Initiative (RGGI) has fallen victim to the same disease that afflicted the European Emissions Trading System: over-allocation of credits to industries, who quickly met their targets, forcing the price of carbon down to worthlessly low levels. Supporters of carbon trading are quick to remind audiences of the success of the SO₂ trading system in the US, but analysis shows that market actually retarded innovation by allowing polluters a cheap path away from better technology and reduced emissions. In light of the failures of the SO₂ market and the poor performance of the CO₂ market in Europe, the nascent Chicago Climate Exchange is unlikely to deliver emissions reductions.

Among other carbon trading mechanisms underway is the Clean Development Mechanism, or CDM. Since 2002, roughly \$8 billion worth of transactions have taken place under the CDM. Destruction of hydrofluorocarbons—or HFC-23—has qualified as a CDM credit, and proven highly controversial. Recent reports suggest that this trade in HFCs is actually creating perverse incentives to manufacture HFCs in order to profit from their destruction,²⁰ thereby

14 Adapting to Climate Change: What’s Needed in Poor Countries and Who Should Pay, Oxfam, May 2007.

15 “Securing Energy Access for the Poor: Is it Feasible and Attainable,” Kamal Rijal, UNDP, Aug. 20, 2007.

16 In 1999, the Bank launched its first carbon trading arm, the Prototype Carbon Fund. In June 2004, it launched the Bio-Carbon Fund “to test and demonstrate how land use, land-use change and forestry activities can generate carbon credits.”¹⁶ The Bank also has launched a Community Development Carbon Fund. This fund “will link small-scale projects seeking carbon finance with companies, governments, foundations, and NGOs seeking to improve the livelihoods of local communities and obtain verified emission reductions.” Additionally, the World Bank administers some funds for individual countries, including the Netherlands Clean Development Facility, launched in 2002, and the Italian Carbon Fund, launched in 2003. And it is now pushing for “avoided deforestation” projects to be included in the CDM.

17Janine Scheelhaese, “International Greenhouse Gas Trading—New Business Options for Banks and Brokerage Houses,” Deutsche Bank Research, December 7, 2001, available at: <http://www.dbresearch.com/PROD/PROD000000000038483.pdf>

18 World Bank, State and Trends of the Carbon Market 2007, May, 2007, p. 9

19 Citigroup analysis

20 Outsize Profits, and Questions, in Effort to Cut Warming Gases, New York Times, Dec. 21, 2006.

placing the Montreal Protocol—the convention to control the destruction of the ozone layer - at odds with the terms of the Kyoto Protocol. In fact, over two-thirds of CDM trades have nothing to do with energy or CO2 capture: HFC projects constitute 28%; nitrous oxide 11%; methane 23%; hydropower (including large-scale hydro already on the books, in many cases) 6%; and wind energy 6%.

In the interest of securing money under the CDM, people have been thrown off of their land to make way for fast-growing eucalyptus plantations. Methane, captured from coal mines, is a hot commodity under the CDM, providing a perverse incentive for coal companies to continue to mine coal. Similar perverse incentives are being created for fly ash, a byproduct of coal combustion, which is garnering CDM credits if it is turned into cinderblocks by adding water and other materials, thereby, in theory, avoiding the emissions that would have been produced had clay bricks been fired in a kiln. Both left- and right-wing politicians are finding fault with the CDM. The right-wing Canadian Environment Minister Rona Ambrose has decried the CDM as unworkable, and pledged not to support it. Die Linke, the new left party in Germany, has called for a moratorium on registration of any new CDM Projects until all currently registered projects are reassessed and their “additionality” and contribution to sustainable development is verified²¹. If these issues cannot be sorted out, Die Linke recommends that the CDM be scrapped.

While the World Bank is clearly calculating and profiting from the carbon credits it helps to broker (charging a 13% commission), this bank and, by extension, other banks operating around the world, public and private that follow World Bank guidelines, are disregarding the greenhouse gas emissions their financing is helping to create. To date, the World Bank Group’s policy has been to consider only the on-site, direct, emissions of its projects, not the ultimate downstream emissions of the coal, oil, and gas it helps to extract and transport. By counting a limited subset of on-site emissions in developing countries, the Bank is not providing policy-makers with an accurate assessment of its climate footprint, while allowing other development banks to follow suit.

Problem #5: Gleneagles Dialogue Gives World Bank Dangerous Leadership on Climate Change, Promotes Business as Usual-Plus

The US incurred a great deal of international disapprobation when former President George W. Bush rebuffed a proposal by German Prime Minister Andrea Merkel, that industrial nations cut emissions by 80 percent in the next 40 years – despite the fact that the world's community of climate scientists declared that the climate is changing three times more quickly than expected. The US attempted to assuage international sentiment through its role in the Gleneagles Dialogue. But the proposals outlined in the Gleneagles Draft are hardly climate-friendly. Far more productive would be the initiation and support by the U.S. Government of a new International Sustainable Energy Agency and a Clean Energy Development Bank.

In July 2005, G8 leaders gathering in Gleneagles, Scotland, committed to hold an ongoing Ministerial Dialogue on Climate Change, Clean Energy and Sustainable Development. This Dialogue, known as "The Gleneagles Dialogue", “has been designed to create a space away from the formal negotiating process at the UN to discuss new ideas, identify common ground and practical actions to reduce greenhouse gas emissions,” according to the organization’s UK press office.

²¹See <http://www.linksfraktion.de/pressemitteilung.php?artikel=1232417305>

Participating countries in the G8 are: Canada, France, Germany, Italy, Japan, Russia, UK, and the US. In the G+5, they are: Brazil, China, India, Mexico, and South Africa. Other participants include: Australia, Indonesia, Iran, Nigeria, Poland, South Korea, Spain, and the European Commission.

The World Bank was instructed by the G8 to develop the “investment framework” for this dialogue. In response, in April 2006, the World Bank released a paper called “Clean Energy and Development: Toward an Investment Framework.”

However, the proposals outlined in the draft are neither clean nor climate-friendly, and the large-scale energy development schemes and technologies it encourages (including nuclear power and carbon capture and storage) are expensive and dangerous. The document also fails to address the Bank’s ongoing conflicting role in contributing to climate change through its support for fossil fuel investments.

If atmospheric carbon dioxide increases above 450 parts per million, a global temperature rise beyond 2 degrees Celsius above pre-industrial levels is almost assured. The 2 degree limit has been adopted by the EU and non-governmental organizations as the threshold for dangerous climate change, beyond which further temperature rise would cause “massive species extinctions and dramatic changes in ecosystems [which] will have severe consequences for human well-being.”²² (Some scientists believe that even at 400ppm there is up to a 26% risk of overshooting the 2 degrees C target.) However, the Bank’s “Clean Energy and Investment Framework” gives reason for concern as an earlier draft suggests global greenhouse gas emissions in the range of 450-1000 ppm are acceptable. (A later draft removed all reference to atmospheric targets.) And the plans it proposes virtually assure such emissions.

Solutions

Big Idea #1: Create an International Sustainable Energy Agency

The Gleneagles Framework must be rejected in its entirety and a new International Sustainable Energy Agency (ISEA) developed in its place to help us reach the goal of stabilizing atmospheric emissions at no more than 450 ppm while meeting the energy needs of the world in a sustainable fashion.

The Kyoto Protocol is a small first step, but has resulted in serious problems primarily due to the fact that the market is assumed to be fully capable of driving the global economy away from entrenched fossil fuels and toward clean energy alternatives. However, even when market mechanisms are provided, they do little to finance clean energy, as noted above. Furthermore, large financial institutions such as the World Bank and export credit agencies are proving incapable of ramping up clean energy investment in any significant fashion.²³

The idea of an ISEA is not a new one: In 1992, the internationally renowned energy expert Gustav R.Grob and others stated at the first World Clean Energy Conference in Geneva that a new special agency was needed to manage the transition from finite, risky and polluting energy systems to benign, clean systems. Currently, the International Atomic Energy Agency (IAEA) in Vienna is the only special energy agency of the United Nations; this agency is ill-suited to manage such a transition. Similarly ill-suited to the task is the International Energy

²² IUCN Release, “Dire consequences if global warming exceeds 2 degrees says IUCN,” November 29, 2005 <http://news.mongabay.com/2005/1129-iucn.html>

²³ See OECD study on ECAs and renewable energy, TK

Agency, created in the aftermath of the first OPEC oil crisis; the IEA is accountable only to OECD countries, and largely focused on managing fossil fuel energy resources.

What is needed is an agency to help shift the roughly \$180-200 billion in annual subsidies to the fossil fuel industry and the \$16 billion in subsidies to the nuclear industry to clean energy. Renewable energy currently gets roughly \$10 billion in subsidies annually.²⁴ The tasks of the ISEA would include the following:

1. To collect complete energy statistics and forecasting in cooperation with other agencies.
2. Establish a world-wide network of specialist centers in the following areas:
 - Hydropower (small and medium scale);
 - Wind Power, wind pumping, sailing;
 - Biomass (solid, liquid, gaseous, energy from waste);
 - Geothermal (heat, power);
 - Solar (PV, heat, drying, solar architecture, solar air conditioning, solar pumping, sterling systems);
 - Ocean Power (waves, tidal)
 - Hydrogen production, storage and applications (stationary and mobile)
 - Heat pumps, co-generation
 - Muscle energy (animal, human, cycling, walking)
 - Sustainable transport (road, off-road, rail, water, air)
 - Efficiency measures (insulation, lighting, vehicles, car pooling, economic drives etc.)
 - Education, human behavior, awareness creation etc.

For each specialist center a qualified coordinator will form an international team of experts.

3. All viable sustainable energy know-how sources from governments, communities, NGOs, industry and academia shall be linked South-South, North-South, East-West and vice versa to assure a complete, world-wide information exchange to the benefit of all and for rapid, most economic implementation.

4. Implement an “oil, gas and coal depletion protocol.” Such a protocol, similar to that proposed by petroleum geologist Dr. Colin Campbell,²⁵ Dr. Richard Heinberg and others, would encourage all countries globally to more accurately assess their fossil fuel reserves as well as their imports and exports, and more transparently manage their steady reduction in consumption, imports, and exports by at least the world depletion rate, in order to avoid the economic shocks due to the “peaking” and collapse of these markets.

Big Idea #2: A Clean Energy Bank

We propose that, under the umbrella of the ISEA be placed a “Clean Energy Bank,” charged with the task of coordinating the financing of local and regional projects by enhancing capital sourcing from all possible investors and lenders for sustainable energy. Currently, lenders such as the World Bank Group and export credit agencies, private sector banks, foundations, donors, and governments are trying without success in providing financing for small-scale, renewable energy systems for developing countries. The ISEA’s Clean Energy Bank would provide micro-loans and grants in a decentralized fashion, ensuring, for example, that a clean energy loan was provided to a rural area (North or South) coupled with an economic development strategy—such as a business based on computer or cell phone service—to ensure the loan could be repaid. Where appropriate, grants would be provided coupled with

²⁴ Analysis of existing and planned investment and financial flows relevant to development of effective and appropriate international response to climate change, UNFCCC, July 2007, p. 43

²⁵ See <http://www.oildepletionprotocol.org/theprotocol>. Also known as the “The Rimini Protocol” and “The Uppsala Protocol.”

technological capacity building to ensure the recipients of the clean energy grant were capable of maintaining and repairing the equipment.²⁶

Among other items, such financing should help pay for technology transfer to technology developers, similar to that allowed to drug manufacturers for AIDS drugs, to ensure speedy dissemination of the technology, unhindered by patents.

The basic electricity needs of 1 billion people could be covered with a generating capacity of 56 gigawatts.²⁷ A program to create 56 gigawatts of capacity with low or no-carbon technologies (including capacity building) would cost an estimated \$100 billion dollars.²⁸ In comparison, the worldwide subsidies for conventional sources of energy (and particularly fossil fuels) are estimated to amount to at least \$150-250 billion per year.²⁹

The ISEA's Clean Energy Bank could work to ensure that member states subsidies to dirty, unsustainable energy was identified and phased out, with the exception of those subsidies targeted at low-income persons, and redirected toward sustainable forms of energy (including the support of the ISEA itself).³⁰

Increased support from governments and international financial institutions for renewable energy technologies would bring down the relative costs of these technologies not just for poverty reduction, but also for combating climate change.

A clean energy bank is not a new concept. Created in 1992 at the Rio Earth Summit, the Global Environmental Facility comes closest to this concept. Charged with managing the financial mechanism for the international conventions on biodiversity, climate change, persistent organic pollutants, and desertification, the GEF is a repository for clean energy funds. However, the GEF is not singular in its focus, and perhaps better tasked with the charge of financing the other environmental conventions. The coming global energy transition requires an agency with a broad enough remit and a singularly focused agenda to allow it to meet the challenge.

If one accepts this institution is needed, the question then becomes: Where would the money come from? How much would be required? And how would it be handled to ensure the money was not squandered?

The revenue required to make a dent in the at least \$8 trillion needed by 2030 for developing countries energy infrastructure development is not insignificant. Additionally, there will be a need for an Adaptation Fund, amounting to an additional \$10-\$50 billion per year.

A variety of sources of revenue could be marshaled for these tasks.

Among them:

1) A share of the revenue generated under any sort of cap and auction scheme and/or

26 The Renewable Energy Task Force of the G-8 produced a report in 2001 which found that renewable energy could be provided to 1 billion people by grants and loans by 2010. This overview could help inform the financial mechanisms for the Clean Energy Bank.

27 See William Fulkerson et al, Sustainable, efficient electricity service for one billion people, in: Energy for Sustainable Development, June 2005, pp. 26-34, p. 31
28 *ibid.*

29 See REN 21, Renewables 2005, p. 16

30 See the statute put forth, The International Sustainable Energy Agency, available at <http://www.abolition2000.org/atf/ct/%7B23F7F2AE-CC10-4D6F-9BF8-09CF86F1AB46%7D/ISEA.PDF>

carbon tax that is developed in the U.S. (and elsewhere) could be allocated to developing country needs under the ISEA.

2) A border carbon fee.

3) A tax on international currency transactions, arms trades, or oil trades.

4) The reform and redirection of all multilateral and bilateral development agencies' funds away from fossil fuels, with a partnership with the clean energy bank for all future energy lending.

5) Debt relief

1) A share of revenue from auctioning or taxing carbon

A proposal to impose a cap on heavy emitters of CO₂ (those emitting more than 100 billion Btu) and steadily reduce it by 2.5% per year is part of Dr. Arjun Makhijani's "Carbon-Free and Nuclear-Free" proposal (see below). Such a cap and auction (limited to the confines of the U.S.) would generate \$40 billion per year (at \$10/ton of CO₂). A share of that revenue—perhaps 5%-- could be allocated toward the clean energy bank. A carbon tax, if imposed, should be counter-balanced by a reduction in taxes elsewhere such as, for example, in the payroll tax to ensure it is non-regressive and stimulates the domestic economy overall. A share of this revenue should also be allocated to the Clean Energy Bank. Given that a significant portion of our defense budget is apportioned to protect sea lanes for shipping oil, and conflict over oil resources throughout the world is a key factor in our military budgets, a reduced dependence on foreign sources of oil and gas could have a significant windfall for taxpayers—a peace dividend, that could be reallocated to clean energy development and economic and employment transitions involved in clean energy, both at home and abroad.

2) A border carbon fee

To address the concerns that organized labor and others have of reduced competitiveness in any carbon auctioning or taxing scheme, one approach would be to set tariffs on imported goods and services to reflect the costs to society when they are produced with dirtier fuel or less sustainable methods than those used for similar domestic goods.³¹ This could apply to carbon-intensive goods such as steel as well as natural products, such as timber, when they are unsustainably harvested. The proceeds could be made available to developing countries to reduce pollution and increase energy efficiency and renewables targets or to finance other climate mitigation or adaptation goals.³² Such green tariffs for aid could become a component in a post-Kyoto international climate change convention.³³ A tariff and loan program is a much gentler precursor to embargoes that are allowed in international law and the General Agreement on Tariffs and Trade against those who choose not to use comparable methods of controlling harm to public health or natural resources.³⁴ Tax and tariff policy could spur faster change if the US were to impose a tariff that reflects avoided costs due to lower environmental and labor standards in the exporting countries.

Many lessons on the way toward climate and energy security can be learned from Europe, which has been measuring the health costs of air pollution and discussing a pollution tax on imports as well as partnering with non-EU countries to reduce pollution and promote clean

31 Article 3 of the Convention on Biological Diversity and Article XX(b) and (g) of the GATT, as reviewed in the Sea Turtle-Shrimp Appellate Decisions of the WTO, 1991-3.

32 The E.U. is considering such border taxes on pollution now. See: <http://www.pointcarbon.com/Home/News/All%20news/EU%20ETS/article18599-467.htm> for a November 2006 report describing the plan.

33 The Bush Administration promised to propose measures to require constraints on emissions from the developing world when it rejected Kyoto, which does not. Despite suggestions from within USAID and elsewhere, the Administration failed to do so.

34 Article 3 of the Convention on Biological Diversity and Article XX(b) and (g) of the GATT, as reviewed in the Sea Turtle-Shrimp Appellate Decisions of the WTO, 1991-3.

energy.³⁵ Other countries have taken on the climate challenge in innovative ways: Costa Rica saves its forests and coastlines from oil drilling through oil exploitation bans and ecotourism. Ecuador has recently announced it would like to keep a share of its oil in the ground, if given proper compensation for it. China recently announced what may be the strictest fuel efficiency standards, although modern vehicle safety may not yet be incorporated in their requirements. Such positive steps could be rewarded with additional revenue streams from a border carbon tariff at the US and other borders.

3) A tax on international currency transactions, arms transfers

A tax on international currency transactions has been proposed by, among others, Economist James Tobin. The tax was conceived as a means of slowing down the volatility of international currency transactions. However, the revenue generated could provide an added bonus: financing climate stability, compensating poor countries that choose to keep oil in the ground, and adaptation. International currency transactions currently amount to roughly \$1.3 trillion per day. A tax of a quarter of a penny on the dollar would generate over \$300 billion in revenue per year, assuming that over one-third of these transactions continued after the imposition of the tax.³⁶

4) Reform of MDBs and ECAs away from fossil fuels

Tens if not hundreds of billions of dollars in development lending is now being channeled via export credit agencies and development banks toward fossil fuels, deforestation, and other climate altering projects. A carbon debit, as proposed below (Big Idea #3), would begin to send the correct market signals to these institutions to get out of fossil fuel financing. However, many institutions are not properly suited to finance clean energy projects—many of which are inherently small, labor-intensive, and could involve microloans in rural areas—in developing countries. For example, export credit agencies make it a priority to finance projects that benefit their national industries, thereby inherently working at odds with the goals of technology transfer in the Climate Convention. Similarly, the development banks tend to work best with large-scale energy projects, not smaller ones.

Getting these ECAs and MDBs to turn instead to a Clean Energy Bank for whatever investment they might want to undertake regarding clean energy in developing countries would help consolidate the expertise and financing for clean energy and adaptation funding globally.

5) Debt relief

Energy projects approved for financing by the Bank from 1992 to 2004 will lead to over 43 billion tons of carbon dioxide emissions, of which over half (23.8 billion) are export-oriented projects.³⁷ Thus, the issue of debt relief as raised in various international fora has both environmental and human consequences: Debt cancellation for poor countries means less pressure to extract the most liquid of assets, namely, natural resources.

Debt is one of the drivers in the rapid exploitation of oil, gas, coal and forest resources in developing countries. The argument is often made that it is the North that owes the South an ecological debt for the years of exploitation of the resources of developing countries. Thus, debt cancellation is an important factor in promoting the better management of natural resources. It is also possible that debt cancellation could be pursued with a pledge by the debtor country that significant forests and fossil fuel reserves would remain intact. Such

³⁵ See, www.panda.org/epo.

³⁶ For a fuller discussion of this, see Ross Gelbspan's "Energy Modernization Fund" at www.heatisonline.org/contentserver/objecthandlers/index.cfm?id=6320&method=full

³⁷ *Idem*.

“debt for nature” swaps have been tried in the past, with mixed results. However, if indigenous peoples were empowered in the decision-making processes around such swaps, with greater land rights, for example, in exchange for protection of the forest and natural resources, while government coffers benefited from the debt cancellation, this process could succeed.

Big Idea #3. Implement A Carbon Debit Mechanism

So long as carbon trading continues, by the market’s own logic, with credits should come debits. So, for example, if one examines the World Bank’s energy portfolio, one can calculate billion of tons of carbon dioxide emissions from fossil fuel projects financed from 1999 when their Prototype Carbon Fund was, to the present. Many of these projects would not have come to fruition without World Bank involvement, by the Bank’s own admission. Indeed, it is the lack of private finance for such projects that is the common rationale for World Bank involvement in such projects. Thus, one could say these projects are “additional,” and, if they have a negative climate impact, should be considered as a “carbon debit.”

Currently, investors in the CDM must prove that a project is “additional,” i.e., without additional sources of finance, the project would not have taken place. Such projects qualify for carbon credits. Why, then, should the reciprocal not be true: If a project would not have taken place but for the finance involved, as so many development banks claim, why should the carbon content not be calculated as a “debit” for investors? Such a proposal would begin to address the extraordinary imbalance that now exists in various portfolios of public banks, from export credit agencies, which constitute roughly \$75-\$95 billion in investment globally per year, to multilateral development banks, to their partner investors in such “additional” projects, the private banks. If just four of the major international financial institutions diverted only 20 percent of their investments away from fossil fuels and into energy efficiency and renewables, the emissions avoided each year would equal more than one and a half times the amount claimed under the CDM.³⁸

How would such a “carbon debit” mechanism work? Based on a methodology developed by the National Academy of Sciences, and approved by the IPCC, investors would be required, prior to project approval, to assess the upstream and downstream climate impact of their lending. If the debits outweighed the credits, the net debits would accrue in the investor’s portfolio—with the virtual value of the debit being its ability to cancel out the equivalent carbon credit. Only when net credits take place on a quarterly basis can an investor claim – and profit from—brokering a “credit” in the carbon market. So, if the World Bank’s quarterly portfolio included fossil fuel projects whose lifetime emissions were 10,000 tons of CO₂, and there were the equivalent of 11,000 tons of CO₂ certified emissions reductions (CER) that the Bank had financed under the CDM, a total of 1000 tons of CO₂ CERs would be credited to the Bank’s account.

The U.S. and other developed countries must lead by example, and rapidly move away from fossil fuels. Unless we change our path, the U.S. will become increasingly dependent upon foreign sources of fossil fuels to keep pace with its rising consumption.³⁹ The U.S.

³⁸ Banking on Climate Change: How Public Finance for Fossil Fuel Projects is Short Changing Clean Development, SEEN, 2000

³⁹ The United States is, by far, the leading consumer of global oil, and this is unlikely to change over the next two decades. It consumed 25 percent of the world’s oil in 2001 and, the U.S. Department of Energy (DOE) projects, will consume 24 percent of the world’s oil in 2025. By then, the U.S. will consume an additional 8.6 million barrels per day on top of its 2001 levels, outpacing even China and India, which will add 5.9 and 3.4 million barrels per day, respectively. Signatories to the Kyoto Protocol are projected to consume far less oil: While U.S. consumption will increase by 44 percent from 2001 to 2025, Western Europe’s oil consumption is

government projects "increasing dependence on petroleum imports," rising from 53 percent of domestic petroleum consumption in 2002 to roughly 70 percent in 2025.¹ Many of the new imports will come from projects that the World Bank has financed in the Caspian region, West Africa, Russia, and South America. To both help wean us from these cheap fossil fuels and to help develop the clean energy infrastructure for developing countries, a carbon debit mechanism could help provide the "stick" needed to honestly assess the actual impact the "carrot" of carbon credits is making on the global climate. The aim of this debiting would be ultimately to facilitate a global energy transition. That would be immeasurably aided by a full and true accounting of carbon emissions generated through the development process – and would eventually lead to the phasing out of interim carbon markets and the CDM as well.

Assess the full impact of GHGs in the developing world

In order to work toward this greater honesty in carbon accounting, and facilitate a carbon debit mechanism, several critical changes must take place: **We must assess the full impact of the greenhouse gas emissions coming from the developing world.** Currently, there is no proper accounting system for all of the variety of greenhouse gas emissions that developing countries are producing—from emissions from wood and dung fires to methane from rice paddies to deforestation. In order to reach a global deal, one that includes all countries, including developing countries, in a stable climate regime, this assessment must take place. However, it is important to distinguish between emissions that are a result of pure "survival" and those that are a result of investment that ignores the climate challenge before us. A carbon debit mechanism, with a methodology developed by the National Academy of Sciences and then adopted by the Intergovernmental Panel on Climate Change, could help us begin to assess a portion of the greenhouse gas emissions that developing countries are producing, namely the "luxury" emissions; calculations of "survival" emissions that result from cooking and heating, for example, should follow.

Disaggregate "Survival" Emissions, Targeting Women's Energy Needs

So-called "survival" emissions are often the result of fuel burned in developing countries for cooking and heating. The task of gathering these energy resources largely falls on women, in virtually every developing country. As cooking fuel becomes more scarce, women are investing more time and caloric energy gathering increasingly scarce fuel. This has consequences for both their health and the health of their children who end up accompanying them on long hunts for fuel or in breathing smoky indoor fires.

Empowering women, on the other hand, with sustainable energy resources would accomplish multiple goals: It would provide them with more time and energy for their families, which has multiple potential dividends, including income-generating opportunities; it would improve their health and that of their children, by making their indoor air less polluted; and it would allow the forest cover to regenerate itself. Model programs which attempt to address women's "survival" energy needs exist, such as the Greenbelt Movement of Kenya, whose founder, Wangari Maathai, was recently awarded a Nobel Prize. In addition, the Self-Employed Women's Association of India and the Grameen Bank of Bangladesh provide innovative and highly successful approaches to microlending targeted at women. These models provide revolutionary alternatives to the traditional approaches to energy delivery and development lending, while also empowering women and regenerating the natural world.

projected to increase by just 9 percent, Japan by 22 percent. Overall, the U.S. government figures global oil production will grow by 52 percent between 2001 and 2025.

Numerous studies suggest that women’s empowerment is fundamental to population control; and population is a key component in a stable climate.

Thus, the president of the US could advance the cause of women worldwide while providing the energy needs of the poorest by 1) encouraging AID and other overseas development agencies to learn the lessons from the Greenbelt Movement of Kenya; the Self-Employed Women’s Association of India; the Grameen Bank of Bangladesh; and similar women’s empowerment projects globally and 2) determining how best to incorporate such models into future sustainable energy development policy.

Big idea # 4: Ensure MEAs Override Trade Policy; Promote Clean Energy Sovereignty

The world needs new trade rules to encourage clean “energy sovereignty”-- the freedom of regional, national and local communities to promote and protect their own autonomous and ecologically sustainable energy systems. This in turn would promote low-carbon commerce.

Principles for low-carbon commerce would:

- **First, do no harm:** Only after climate (and other social and environmental) costs are internalized—via a carbon tax or other measures-- should exports be allowed to expand. Before pursuing any more efforts to increase market access for exporters of products that create a lot of GHGs, we must restore all governments’ abilities to take adequate measures to internalize costs, protect climate-friendly systems of production from unfair imports, and encourage production activities that conserve energy use and reduce GHG emissions.
- **Democratize decision-making for climate:** US trade negotiators must allow all governments the political space to enact legitimate measures to protect the climate, and that means shifting decision-making power from trade fora to climate fora. Trade ministers should not be the ones to decide which climate protection measures are allowable.
- **Use markets to encourage clean energy:** Access to markets for goods and services can be a very powerful incentive but currently trade rules prevent governments from conditioning access to markets in favor of clean energy users or producers. When pursued, such markets must be planned and implemented in cooperation with producers and governments in the exporting nations to ensure the impacts are fair and in fact contributing to climate protection.
- **Share clean energy technology/dump dirty technology:** Trade measures can help or hurt technology transfer, either facilitating or restricting their export and import. Monopoly patents can restrain the proliferation of low-carbon equipment that many countries want but can not afford; compulsory licenses granting use of select clean energy technologies should be allowed.
- **Nature Trumps Trade:** Climate measures in MEAs should override trade rules in the WTO and other international trade agreements. Our global economic system needs to establish a clear hierarchy of values that favors the planet over profit.

American initiative must aim to create a new comprehensive economic framework for countering climate change based on these principles. Including trade issues in a climate regime will, of course, not change the trade issues per se because that must be done formally in the trade bodies themselves. But our president should clarify that full authority over

international policies for energy and climate belongs under the United Nations, not the WTO.

The US should coordinate with other governments to negotiate new world trade rules to address at least some of the following specifics in WTO Agreements:

- Ensure that domestic regulation and standard-setting needed to shift toward socially stable and ecologically sustainable energy supplies stays under the control of domestic democratic policy processes and is supported by international climate and energy agencies, not transferred to international trade bureaucracies. This redirects trade negotiators away from the dangerous direction of current talks on Energy Services (where some propose to establish new criteria for justifying domestic regulations) and Energy Goods (where energy efficiency standards may become more vulnerable to challenge as Non-Tariff Barriers);
- Allow specific subsidies for promoting renewable energy programs and practices. This instructs trade negotiators to change current subsidies rules to avoid challenges against renewable energy;
- Promote a fair balance between promoting access to clean energy technologies and protecting innovation in developing nations. This advises trade negotiators to avoid intellectual property traps so that we can expedite the transfer of climate-friendly technologies;
- Reestablish the rights of nations to freely determine the country of origin, scale of production, and environmental impact of their energy imports so they can pursue energy sovereignty and protect climate stability. This urges changes to basic trade principles that now prevent using market access — including border adjustment taxes — to secure stable and sustainable energy supplies.
- Encourage governments to freely implement multilateral environmental agreements (MEAs) such as the United Nations' Kyoto Protocol, by exempting the trade measures needed to enforce them from WTO challenges. This establishes a clear hierarchy of sustainable development imperatives over trade interests, and could be the single most effective way to address the issue in one fell swoop.

Big Idea #5: Globalize a Carbon- and Nuclear-Free, Sustainable Future with our US Government Agencies

Although many claim that clean, renewable energy cannot provide for the energy needs of this country or others any time soon, others lay out specific plans to achieve such a goal. U.S.-based scientist Dr. Arjun Makhijani released a report, “Carbon Free and Nuclear-Free: A Roadmap for U.S. Energy Policy,” in June 2007 which sets forth an ambitious agenda for the U.S. to eliminate the use of fossil fuels—reducing U.S. emissions by upwards of 90 percent--and nuclear power by 2050. Portions of this agenda could be globalized.⁴⁰ For example, Makhijani favors using microalgae to make liquid fuel alternatives to petroleum-based fuels. Microalgae can be created in bioreactors at existing coal-fired or other biomass-fired power plants. In countries such as India, which have scarce land resources for growing biomass, capturing the CO₂ in a coal-fired power plant emissions and “sinking” them into microalgae, which in turn could be transformed into biodiesel or ethanol, could provide a good middle ground as India weans itself from coal-fired power. Such a move would give India fewer greenhouse gas emissions and greater energy independence while avoiding the costly and dangerous option of nuclear power. Similarly, the water hyacinth, a prolific aquatic plant, could serve a dual purpose of wastewater treatment and energy production.

40 Arjun Makhijani, Carbon-Free and Nuclear-Free: A Roadmap for U.S. Energy Policy, Nuclear Policy Research Institute and the Institute for Energy and Environmental Research, July 2007. The summary is available at <http://www.ieer.org/carbonfree/summary.pdf>

Makhijani also lays out an ambitious agenda for solar electricity, wind and other clean energy supply technologies as well as energy efficiency approaches available now to help the U.S. exceed the targets necessary to stabilize the climate. In the United States, the area of parking lots and commercial rooftops is large enough to supply most of its electricity requirements. These ideas could be further developed for international deployment.

Other innovative thinkers such as U.S. Architect William McDonough are working with the Chinese government around “cradle to cradle” design for everything from buildings to public transportation systems. Instead of designing cradle-to-grave products, whereby products are dumped in landfills at the end of their useful life, McDonough’s “cradle to cradle” design transforms industry by creating products whose materials are perpetually circulated in closed loops, mimicking the natural world. Maintaining materials in closed loops maximizes material inputs—including energy inputs-- without damaging ecosystems, including the global climate.

Such ideas need to be better implemented at home and exported abroad. Instead of focusing exclusively on importing or exporting specific products, such as Boeing airliners, as the U.S. Export-Import Bank does, the President of the U.S. should encourage our export credit agencies, AID, our trade and development agency, and State Department to begin exporting and importing sustainable development plans, such as those McDonough is developing in China, replicating their successes, where they exist with staffing and expertise, while supporting U.S. industries that are leading in the development of sustainable technology.

Conclusion

Previous US policy on climate change has done harm to America’s strategic, economic and global leadership goals. Energy innovation can – and should – embrace a variety of policies, and this policy memo outlines some of the most effective policy choices available to the next president. German Chancellor Angela Merkel, Steelworkers President Leo Gerard, and Governor Arnold Schwarzenegger – despite political differences – share the realization that we need not choose between jobs and climate change. In fact, the choice is quite the opposite. While the previous administration contended that reductions in carbon emissions would require economic contraction, Merkel and millions of others are aware that emission reductions create jobs. The countries embracing policies in advance of and in preparation for the inevitable energy transition will be best positioned to lead the world economically, politically, and environmentally. In addition, history will regard them as the stewards of the next generation’s prosperity. Our international financial and trade policies have not served our producers, consumers, or grandchildren – they have served industries dependent on *fuels made of fossils*. Though the next president’s role is not uncomplicated by any means, his or her climate change and energy goals are very clear.
