



August 10, 2010

The 2010 Climate and Energy Workshop Series
Climate Science: What We Know, What We Don't, and Why it Matters to Industry
July 26, 2010

RECAP

On July 26, 2010 the Office of the Representative of German Industry and Trade (RGIT), with the German Embassy, hosted a workshop on climate science under the auspices of the *Transatlantic Climate Bridge*. The workshop was the inaugural event of the *2010 Climate and Energy Workshop Series*. This **report** recaps the workshop proceedings. The **speakers** are listed below.

Introduction

Climate is a hot topic, literally and figuratively, around the world. In recent weeks the eastern seaboard of the United States (US) has experienced unusually high temperatures. The same is true in much of Germany: the sun is shining from Dresden to Hamburg, river beds are shrinking. Russia is grappling a large forest fire. Meteorologists are pointing to data that show that certain areas are recording temperatures that exceed historical records and medium-term trends.

In Washington the debate on climate is particularly heated. Last year the House of Representatives (the House) passed a groundbreaking climate and energy bill. Although the Democrats enjoy a near 80-seat majority in the House, the massive bill (*American Clean Energy and Security Act of 2009*, H.R. 2454) passed by only seven votes. The thin margin would not have been possible without Republican support.

The Senate has been unable to follow the House's lead. The Senate's initial counterpart climate-and-energy bill, sponsored primarily by John Kerry (D-MA) and Joe Lieberman (I-CT), quickly stalled. Last fall, a bipartisan trio of Senators, Kerry, Lieberman and Lindsey Graham (R-SC), came together to fashion a modified package that would prove acceptable to at least 57 of their colleagues, thereby providing sufficient means to overcome a filibuster challenge. The trio met repeatedly, with colleagues from their respective political parties, and with a range of industry and NGO stakeholders, from October through the end of the year. The three Senators indicated that gradual progress was being made.

The cooperation unraveled in April when Graham pulled his support after Democrats (especially Senate Leader Harry Reid, D-NV) announced immigration would leapfrog climate in the queue. Undeterred, Kerry and Lieberman continued to negotiate, seeking more changes to attract sufficient political support.

Throughout the White House remained fairly passive, working behind the scenes but not leading the debate in public. This changed in June and July, during the crisis in the Gulf of Mexico. President Obama reiterated strong interest to sign into law comprehensive climate and energy legislation, stating that "inaction" would be unacceptable. His environmental advisors ratcheted up the pressure in talks with Members of Congress. The Administration exhorted the Senate to present at least a draft bill prior to the August recess that could be vetted in September and placed into conference in October.

The Senate could not deliver. Already in July, parsing the tea leaves, Reid had pulled climate from the agenda. Even this did not create breathing room. At the eleventh hour the House passed two bills that would tighten offshore drilling safety standards and increase liability for oil spills. The Senate could not follow suit, tabling its versions until September. Reid, Kerry and Lieberman were visibly disappointed, as were many House Democrats, who blamed a "filibuster-happy" Senate for exposing their political flank.

Climate Change & Climate Science

To the casual observer it may seem that on climate change, the US and the European Union (EU) are separated by a large body of water, and drifting further apart. Whereas the EU has set ambitious, binding, goals for boosting renewable energy and energy efficiency, and cutting greenhouse gas (GHG) emissions, the US has not taken comparable action, particularly at the federal level. While the Obama Administration is pursuing a “greener” agenda than did the Bush administration, the US does not have a national cap and trade system, there is no national feed-in tariff to promote renewable energies, nor is there a nationwide renewable portfolio standard (RPS) or renewable electricity standards (RES).

The transatlantic relationship on climate is marked, in part, by differences of opinion concerning the reality of climate change, the extent to which anthropogenic GHG emissions are causing or contributing to global warming, the connection between global warming (if it is occurring) and risks to weather, crops, water levels and other activities, the costs associated with taking action (or not taking action) to address the ramifications of climate change, what steps (if any) ought to be taken, and by whom.

According to **Dr. Veronika Huber**, abundant evidence indicates that human activities are causing changes to global weather patterns through the emission of GHG. As depicted below, the GHG are accumulating in the earth’s atmosphere, creating a complex feed-back mechanism typically referred to as the greenhouse effect that is gradually raising average temperatures around the world.¹

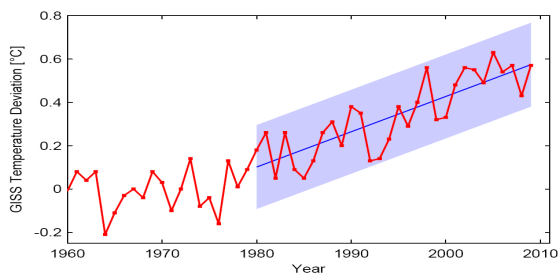


Fig 1: Deviation in GISS Temperature Data 1²

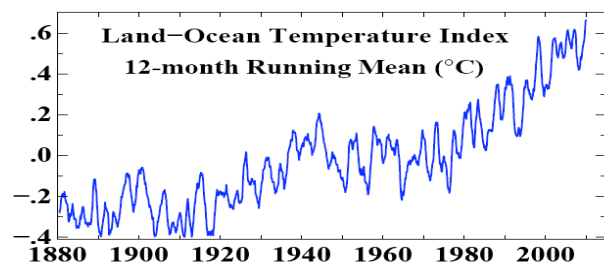


Fig 2: Land-Ocean Temp Index³

Dr. Huber underscored several aspects concerning climate change and man-made GHG emissions. First, carbon dioxide (CO₂) emissions represent the lion’s share of GHG emissions in the earth’s atmosphere. Other GHG have stronger effects on global temperature but are emitted in smaller volumes. Second, CO₂ emissions are long-lived. Once emitted into the atmosphere, they do not dissipate quickly.

Third, scientists posit a tipping-point associated with the effect of elevated GHG concentrations on global warming. The postulate is that if atmosphere GHG reach (or exceed) the tipping-point, a certain amount of global warming will be locked into the global weather system for many years to come, even if worldwide GHG were to sink to zero (an unlikely scenario) immediately thereafter.

Fourth, as shown in Figure 3, if atmospheric GHG concentrations are to be kept below the tipping-point—the oft stated goal is to limit the increase in GHG atmospheric concentrations such that the predicted increase in global mean temperatures, as compared to the level circa 1850, e.g., prior to the start of the industrial revolution, does not exceed 2 degrees Celsius—the sooner that global GHG emissions peak, the less aggressive the subsequent emissions-reducing measures will need to be.

¹ Some acknowledge that weather is changing but question the direction of change, referring simply to “climate change.”

² © Dr. Huber, July 2010. The blue line indicates the 30-year linear trend, the purple zone the range in natural variability.

³ © Dr. Huber, July 2010. Data source: NASA GISS 2010.

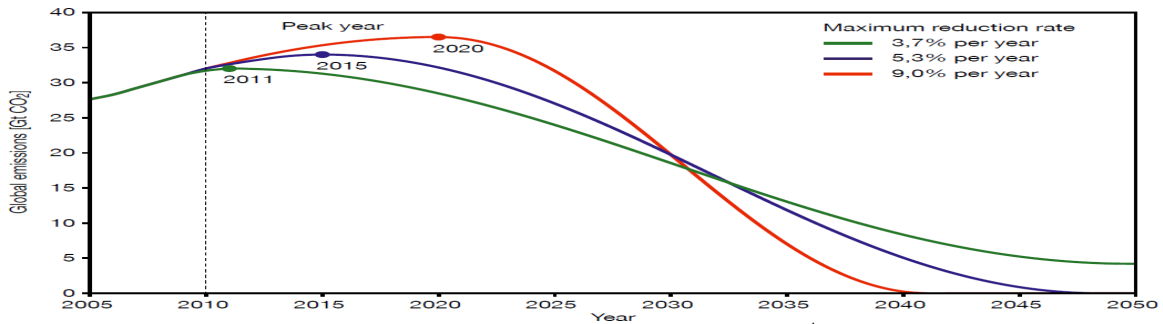


Fig 3: GHG Pathways re 2-Degree Goal 1⁴

Finally, despite surging global interest to promote zero- and low-carbon forms of energy, fossil fuels are projected to continue to meet the bulk of global primary energy demand for decades to come.

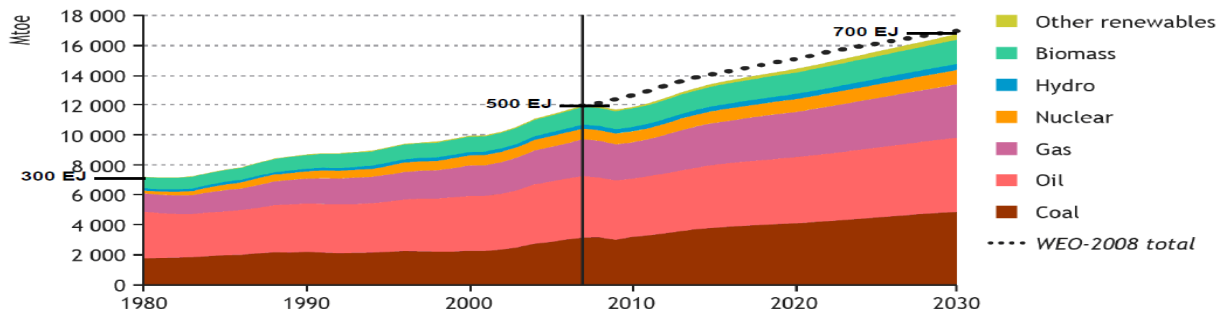


Fig 4: World Primary Energy Demand 1⁵

Leave Room for Debate

After Dr. Huber finished her presentation, **Ken Green** indicated that the foregoing data and associated causal mechanisms are not as fully understood as is maintained by those who subscribe to the theory of anthropogenic-fueled climate change. Green underscored that there are other views – held by a minority of scientists – regarding climate science, climate change, and the appropriate policy responses.

For instance, Green explained that upon the dissolution of the Soviet Union, a number of weather data-collection sites fell into disuse. This could affect the completeness of weather data collected at other locations. Examining incomplete data can lead to flawed conclusions and inappropriate policy responses.

Second, even if global mean temperatures are rising, warmer climates may yield benefits, such as by extending growing seasons or enabling crops to grow in regions that were formerly too cold. This can provide more food to hungry populations and increase the volume of green vegetation, which removes CO₂ from the atmosphere via photosynthesis. Warmer climates can prompt lower winter energy bills. Green claims that standard climate change models often discount the value of such benefits.

Third, Green points to variability in the models that are used by the bulk of the climate science community to substantiate the reality (and potential threats associated with) climate change as a troubling chink in the deductive armor. In Green’s estimation large sections of the climate science community are not paying sufficient heed to variances between anticipated results (before the models

⁴ © Dr. Huber, July 2010. The graph depicts three potential GHG emission pathways to 2050, corresponding to three different peak years, that would limit aggregate GHG emissions to 750 gigatons (GT) and therefore provide a 67% probability of staying below a warming of 2 degrees Celsius. Data source: WGBU Special Report, 2009.

⁵ © Dr. Huber, July 2010. Source: World Energy Outlook 2009.

are run) and model-generated data, raising questions about the soundness of the analytic procedures being employed. Green detects a “pro-climate change” bias when researchers have opportunity to present findings within a range of possible results, asserting there is a trend to select ranges that reinforce a base view (some would say an assumption) that climate change is real and being caused by anthropogenic GHG emissions.

As for the mechanics of climate change, Green faults some climate scientists for failing to take a closer look at potential feedback mechanisms, particularly phenomena that may have a beneficial effect even if global warming is occurring. Increased global warming, for instance, may cause greater precipitation in some areas which can lead to greater cloud formation. Increased clouds, in turn, could reflect more solar radiation back into space, a cooling phenomenon for the earth beneath. Not enough is known about the ephemeral life-cycle of water vapor, another variable in the complex equation. Rigorous adherence to the scientific method ought to encompass close examination of all key factors, and an open mind, especially to data that may challenge expectations or point to contrary conclusions.

A Word on GHG Emissions

The old saw is that, as industrialized nations are responsible for the lion’s share of historical GHG emissions, they should bear the brunt of efforts to curb them. Meanwhile, developing nations should be permitted to concentrate on economic development and adopt GHG-cutting measures, if at all, voluntarily. Data published by the Netherlands Environmental Assessment Agency (PBL) puts paid to that notion, at least with respect to China. Already in 2007 China’s GHG emissions (7.0 billions of tons, BT) were estimated to exceed those of the US (5.9 BT). By 2009 the gap had widened to nearly 3 BT. As shown below, the standard trio of reasons cited for allocating stringent emissions-reduction obligations to industrialized nations — cumulative emissions, emissions intensity and per capita emissions --- are fading. [PBL Report - June 2010](#).

Cumulative Emissions (1850-2006)		Emissions Intensity (tons GHG/\$-Million GDP)			Per Capita Emissions (2009) (tons GHG/person)	
World:	1,150 BT		1997	2006	WORLD	4.6 t/p
US	334	WORLD	807	612	Australia	18.8
(EU)	(306)	China	1254	1046	US	17.9
China	99	Russia	1281	885	Canada	16.3
Russia	98	South Africa	989	830	Russia	11.2
Germany	90	Australia	633	600	Japan	9.2
UK	68	India	621	496	South Africa	8.0
Japan	45	Canada	587	472	EU	7.9
France	32	US	568	453	China	6.1
India	27	Japan	334	315	(France)	(6.0)
Canada	25	EU	368	303	India	1.4

The Auto Industry Speeds Ahead

Volkswagen AG (VW) is prepared to contribute solutions to address the challenge of climate change, and to generate positive economic return from investments in advanced motor vehicular technologies, products and services, according to **Anna Schneider**. VW is reaching out to policymakers and other stakeholders in the US and the EU to reach agreement on regulations and policies that advance environmental objectives while creating acceptable framework conditions for industry.

A shining example is the May 2009 agreement brokered between the Obama Administration, the auto industry, labor organizations, and environmental groups. The stakeholders worked together with President Obama to craft a nationwide plan to increase fuel efficiency standards (CAFE) and introduce GHG emissions for cars and light trucks. To succeed domestically and globally, capital-intensive industries require long lead times, stability and predictability. The auto industry recognized value in substituting a national policy for 50 divergent state-level approaches.

VW has an attractive portfolio with products ranging from its stable of well-known models (Jetta, Passat) to Bentley, Lamborghini, and soon Porsche. In response to political support for transforming the GHG profile of the automotive industry, and growing consumer preference for “clean” products, VW has an integrated, multi-year strategy for delivering autos that blend superior on-road and environmental performance. This includes further enhancements to high-performance, fuel-efficient, low-sulfur diesel engines, full hybrids, plug-in hybrids, electric vehicles, even fuel cell-powered cars. VW is building a state-of-the-art manufacturing facility in Chattanooga, TN to expand the company’s operations in the US.

Crafting a 21st Century Energy Policy

The mission of the Institute for 21st Century Energy (the Institute), an affiliate of the US Chamber of Commerce, is to advance a “common sense energy strategy to help keep America secure, prosperous, and clean.” **Stephen Eule** described the Institute’s stance on the landmark climate-and-energy legislation that passed the House of Representatives in June of 2009, lauding the bill’s objectives but critiquing provisions that would have subjected certain sectors of the U.S. economy to excessive costs that would have threatened domestic jobs and conferred competitive advantage to companies that operate in countries with less stringent (or non-existent) environmental regulations. Eule noted that, while the Senate drafts addressed some of the key flaws in the House bill – such as winnowing the scope of the proposed cap and trade system – they too fell short in certain critical areas.

The Institute does not favor an across-the-board, national cap and trade system to regulate and lower GHG emissions, even though, as a general matter, it prefers market-based tools to “command and control” prescriptions. The US economy is too weak to absorb the greater costs that would flow from a comprehensive cap and trade system – costs that would be borne, in large measure, by individuals – and foreign competitors would exploit competitive advantages to put US companies under even greater pressure. Eule stressed that public opinion polls reflect dwindling support for instituting a convoluted, complex mechanisms that would amount to a “cap and tax” on millions of American households.⁶

Eule pointed out that, if the Obama Administration were serious about weaning US independence on foreign oil, it would be supporting all forms of energy to ensure the country can meet its current energy demand through cost-effective measures while facilitating R&D into next-generation technologies that can help to meet future demand when their costs have sunk relative to conventional energy resources. The US cannot meet its appetite for energy through wind turbines and PV panels alone. There ought to be greater investment in domestic fossil fuels – natural gas and offshore oil – in the near- and medium-term to facilitate the transition to a low-carbon economy.

⁶ The extent to which the “climategate” controversy involving East Anglica University has altered public opinion on climate in the US on in Germany, despite sensational headlines, is unclear.

The View of German Industry

German industry, writ large, accepts the majority position that climate change is real, is being caused by anthropogenic acts, and poses potentially severe threats to society. This is the position of the Federation of German Industries (BDI) and the Association of German Chambers of Industry and Commerce (DIHK). German industry stands ready to demonstrate that the private sector can contribute cost-effective solutions – technology, goods and services – to tackle the challenge of climate change.

In Germany renewable energies and other climate-friendly technologies are welcomed as growth industries that create good-paying jobs and position the country to compete internationally. By 2050 the renewable energy industry seeks to directly employ 500,000 workers in Germany and support an even greater number of indirect jobs.

The German public and private sectors have worked together to demonstrate “decoupling” – that economic growth can be untracked from increasing GHG emissions. The US debate continues to focus on GHG-intensity: lowering the rate of increase in GHG emissions relative to the rate of economic growth.⁷ Compared to the US, there is greater (not unlimited) acceptance in Germany in the private sector and among residents/consumers to accept higher prices as a consequence of taking action to lower GHG emissions and advance other environmental objectives.

Conclusion

Our distinguished speakers engaged in a lively debate on a suite of issues that is complex, international in scope, central to the functioning of modern economies, and a priority for a growing number of policymakers, politicians and regulators. The audience was treated to a quartet of views that cut along two primary axes: German/American; and NGO/Industry.

What emerged is a clear picture that, while there is reported to be a strong consensus among climate scientists and policymakers regarding the link between anthropogenic GHG emissions and global warming, and the need to determine how best to respond to the risks associated with rising average global temperatures, there is also, at least in this country, a vocal minority with different views on these issues. One cannot make sense of the US debate on climate, especially at the federal level, or place it into proper context, without understanding these divergent views, and how they influence the broader debate in Washington and throughout US industry.

There is near universal agreement, however, that the underlying principles, mechanisms and back-end policy responses – the sources of global GHG emissions; the pathways whereby pollutants mix in the atmosphere; the link between rising GHG concentrations and global weather patterns; developing technologies to curb GHG emissions; drafting plans to cope with the adverse effects of climate change – are complex and still not completely understood despite the focused attention of thousands of scientists, policy experts and other top thinkers, and investments totaling hundreds of millions of dollars.

The debate will continue, as will the search for data, truth and effective policy responses.

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⁷ This is reflected in data that compare GHG emissions to Gross Domestic Product (GDP). Based on 2006 data, the EU emitted tons of GHG emissions per million dollars of GDP, Japan 314 tons, and the US 453. 2009 data suggest the US figure may have dropped to 380 tons. *DLC Trade Fact of the Week*, July 21, 2010.

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Speakers

- Dr. Veronika Huber, Scientific Personal Assistant to the Director, Potsdam Institute for Climate Impact Research (PIK)
- Kenneth P. Green, Resident Scholar, Interim Director, Center for Regulatory Studies, American Enterprise Institute for Public Policy Research (AEI)
- Anna-Maria Schneider, Vice President, Industry-Government Relations, Volkswagen Group of America, Inc.
- Stephen D. Eule, Vice President for Climate and Technology, U.S. Chamber of Commerce's Institute for 21st Century Energy
- David Campbell, Director of Trade Policy, Climate Change and Energy, Representative of German Industry and Trade (RGIT) (moderator)

About the *Transatlantic Climate Bridge*

This event was co-sponsored by the German Embassy and RGIT as part of the *Transatlantic Climate Bridge* Initiative. The *Transatlantic Climate Bridge* was launched by the German Foreign Office and the German Environment Ministry to enhance transatlantic cooperation and partnerships between Germany and the US re climate and energy at the local, state and federal levels. [Transatlantic Climate Bridge](#).

The **2010 Climate and Energy Workshop Series**, run by the German Embassy, will host a variety of German experts throughout 2010, tackling topics such as green jobs, Desertec and the International Climate Negotiations in Mexico.