

July 22, 2009

Committee on Foreign Affairs
US House of Representatives
Washington, DC, 20551

Attention: Subcommittee on Asia, the Pacific and the Global Environment

Honorable Congressmen and Congresswomen,

Within the last quarter, the US House of Representatives acted to initiate a new climate and energy policy direction for the US. That policy will attempt to restructure the energy utilization strategy of the US, moving our national economy away from carbon fuels by 2050. Assuming that the Senate and the President concur in concept, the US will approach the Copenhagen Climate Summit with legislative and executive approval to reach agreement on a global climate accord that will move the world economy in a similar direction.

Assuming that such an accord can be reached, the next 40 years will be a period of unprecedented economic, social and environmental change. Under the umbrella of sustainability, we are proposing to transition the developed economies to low carbon utilization societies, and we are proposing to change the developing nation's growth plans to low carbon utilization economies as well. We have lots of theories, but no one knows how to accomplish those goals at this time. We are embarking on a path with very uncertain outcomes, and that realization permeates the political and economic environments that our country faces. Those same concerns drive our corporate strategic planning processes, and many of the thoughts I will share with you today reflect our thinking on climate change and the drive towards global sustainability.

The players in these ongoing negotiations and conflicts can be separated into two groupings: the developed nations and the developing nations. This hearing intends to focus on the societies most vulnerable to climate change, and the committee wishes to know what might be accomplished at COP 15 with regard to those societies. That is a large and complex question, and I know that we cannot do justice to every impacted society and country or region. I would observe that although the expected effects of climate change will vary throughout the world based on physical environmental conditions, but the ability to respond to climate change impacts will be defined by the size of the country and their access to capital and energy resources. In our view, the world's largest developing nations – China and India – also represent some of the world's most vulnerable societies to climate change, and they are also far more vulnerable to the political and economic ramifications flowing from a global response to climate change. China has become a net importer of agricultural goods, is becoming one of the largest consumers of feed grains and is the driest (per capita) country in the world. Critical water resources are being lost to pollution and accelerated melting of ice reservoirs in the Himalayas. India is blessed with sufficient foods, but is already straining the carrying capacity of domestic resources and environmental systems. These two countries represent more than 1/3 of the world population, and both countries face significant domestic political issues because of the vast numbers of economically disadvantaged citizens. Both countries have already committed to a heavy industry and energy-intensive economic development strategy. Both countries face a similar political challenge: improve the economic lot of their poorest populations, or face the real risk of political instability.

China has translated those political realities into a host of economic actions. The sitting government believes that their national economy has to grow at an annual rate in excess of 10% in order to generate enough jobs to satisfy the poorest third of their population. By our estimates, the government needs

approximately 20 years of double-digit growth in order to accomplish those ends. As a part of that growth, China has vastly expanded its energy resource acquisition efforts and energy distribution systems. As another part of that growth agenda, China has become the lead heavy industrial producer in a number of energy-intensive industries. Although the central government pays lip service to sustainability and energy conservation, much of the developmental and environmental control has been ceded to regional and local governments. The expected results of their policies are reflected in Figure 1

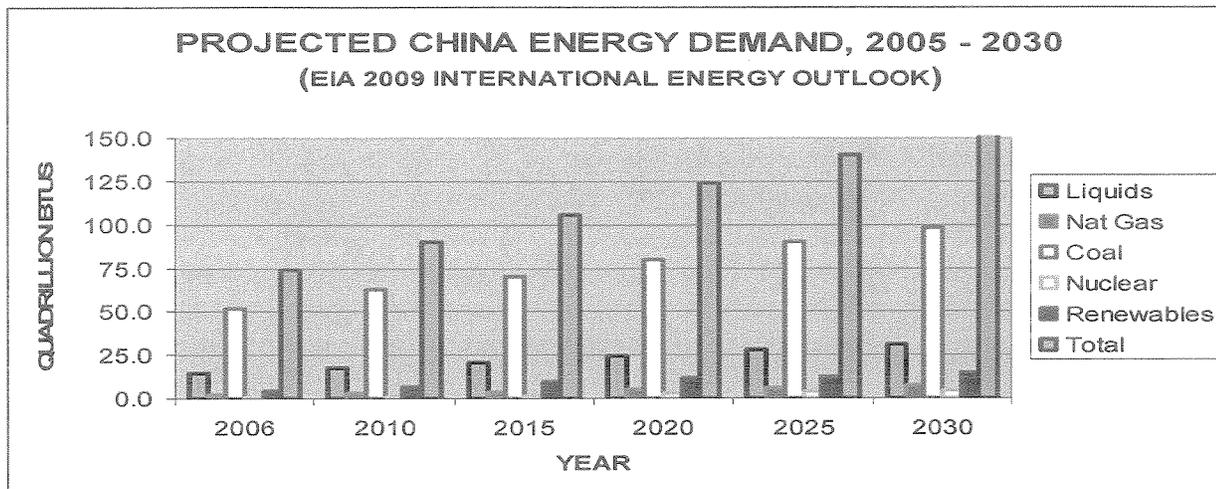


Figure 1: Forecast Changes in China Energy Consumption by Fuel Type

Their energy use is projected to more than double, with a growing reliance on coal combustion, and an index of expected CO2 emissions – assuming no significant technology changes near-term that would reduce coal use or power plant emissions – shows China alone accounting for 50% of the projected world CO2 emission increases (See Figure 2)

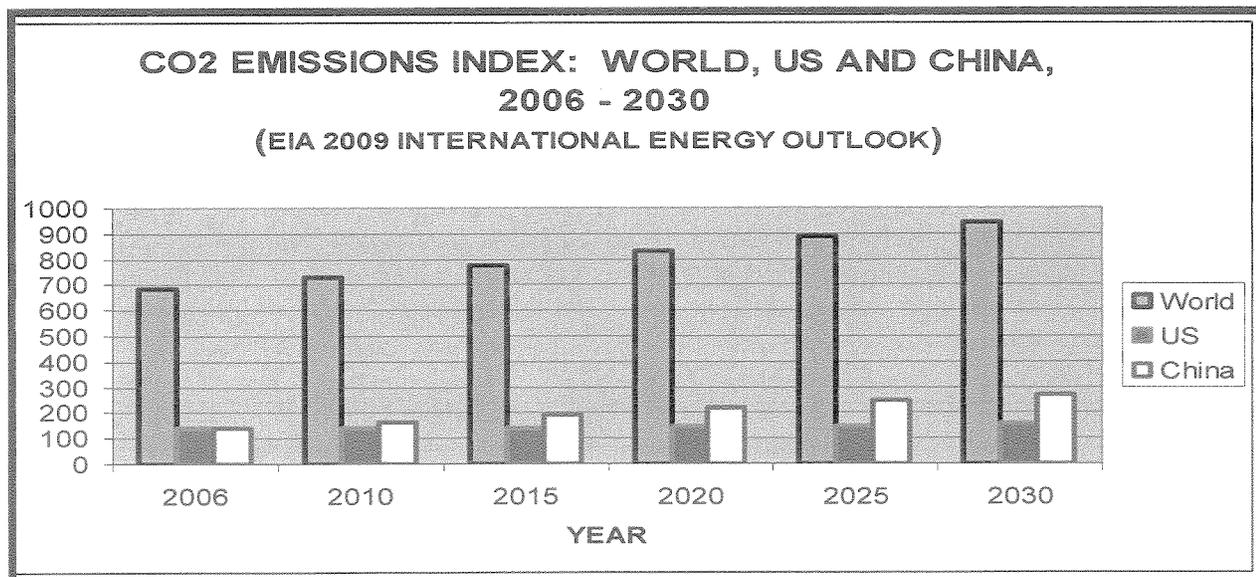


Figure 2: An Index of Expected Changes in World, US and China CO2 Emissions Through 2030

India is following along a similar trajectory, but lags behind China by a decade or so.

As we approach Copenhagen, the initial positions of the key players are becoming apparent. The developed nations are putting proposals on the table to curb their use of carbon fuels over the next 40 years. Both China and India have indicated that they will commit to energy use reduction in concept,

but they are resisting any specific targets. Their argument is based on two spoken and two unspoken concerns. Their spoken concerns include:

- There is a direct, proven linkage between access to cheap, plentiful energy and personal/national wealth
- Their national per capita consumption of energy is far below the levels of the developed nations. Fairness dictates that we must cut back until there is parity between per capita energy use levels (See Figure 3)

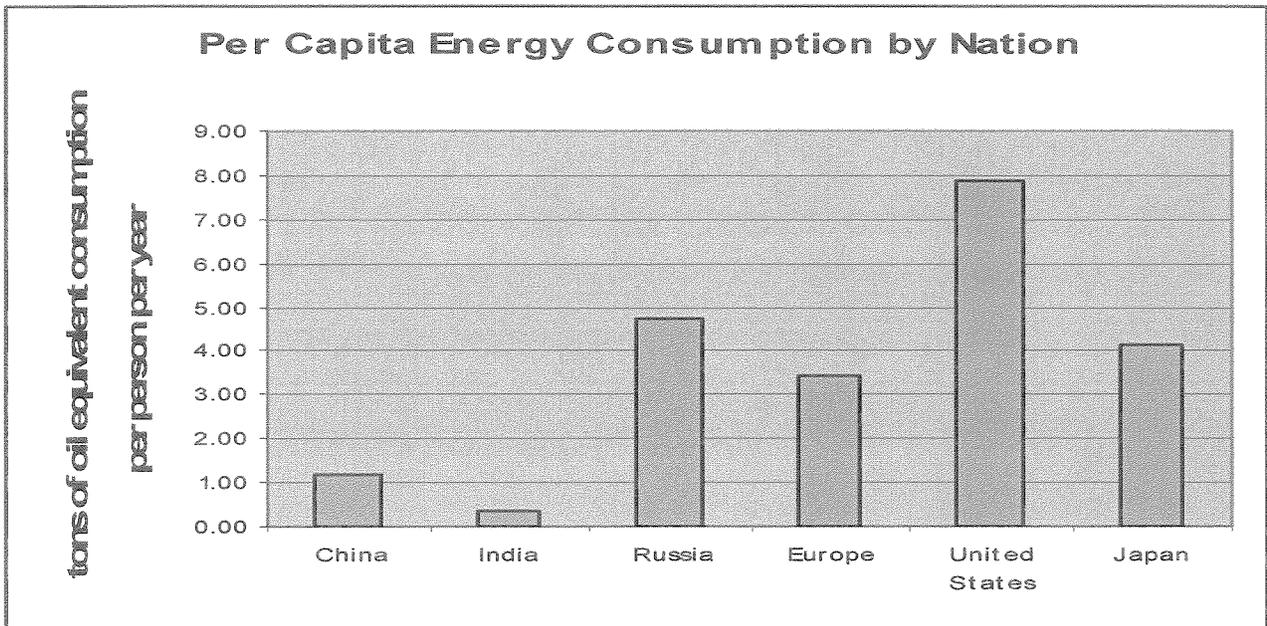


Figure 3: Variances in National Per Capita Energy Consumption Rates

Their unspoken concerns include:

- They will lose control of their national political system if they do not show sufficient progress in addressing the needs of their poorest populations.
- There is no clear path to development without energy

They point out that the developed nations caused the problem of man-induced climate change, and those same nations should bear the burden of repairing the damage they caused. Within the past month, spokespersons for both countries have issued statements indicating hard resistance to significant cutbacks in planned energy consumption. This may be the start of a negotiations process, but the lead developing nations are firmly entrenched. A true success at Copenhagen – a treaty that commits all of the lead developed and developing nations to a course that will lead to a <2 Degree C increase in temperatures this century as defined by state-of-the-art climate models – will be a real diplomatic challenge.

We have observed a number of trends and developments that should influence these negotiations. I will list them and include some brief discussion of each item. I am available to discuss them further with the subcommittee, subcommittee members or staff should you desire to do so. Following those points, I would like to make a few suggestions regarding the US negotiation positions going into the Copenhagen negotiations.

KEY TRENDS AND DEVELOPMENTS

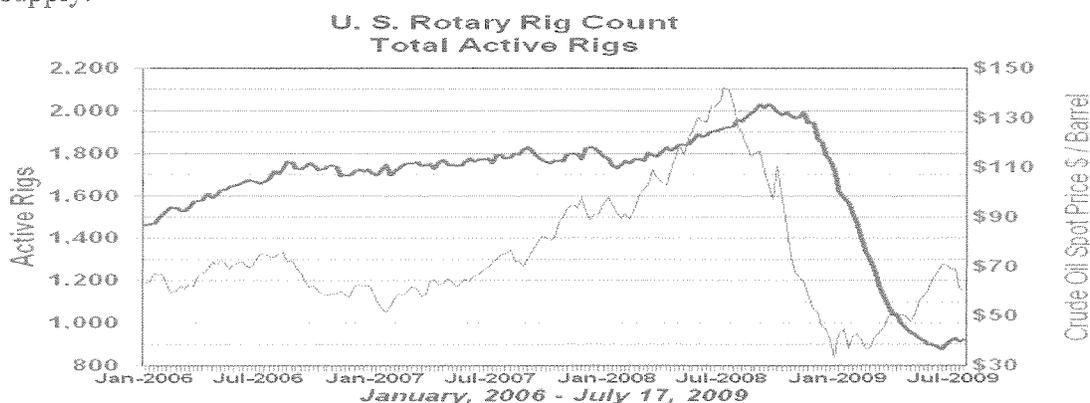
The recent successes and failures at the G8 Summit underscore the complexity of the problems we face. For the first time, the G8 nations agreed on targets and timelines to move towards a low-carbon world economy. At the same time, the G5 nations reiterated their positions that accumulated GHG levels in the atmosphere are the responsibility of the developed nations, and asked that the developed nations accept a target carbon use reduction of 40% by 2020. Those requests/resolutions were not accepted by the G8, and the result was a near-stalemate, which raises concerns about the Copenhagen Summit.

Although our firm is not obligated to track every development in the politics surrounding this policy evolution, we manage toxics and eliminate toxic emissions for a number of national and international businesses, and many of those businesses are energy-intensive manufacturers. We serve clients in developed and in developing nations, and we understand that as governments act to modify the global energy economy, they will cause significant changes in global commerce, and that will certainly influence our own operations. The comments we offer today reflect some of our own strategic view of climate change and government responses to the threats associated with those changes. We offer our thoughts in the hopes that this committee and Congress will be able to use them in order to make policies that are in the best interest of the United States.

We are entering a period of significant energy supply risk

Natural Gas

We are particularly troubled with recent developments in the energy supply sectors of the national and global economies. As members are no doubt aware, falling demand related to the recession has generated national and global oversupplies of natural gas, record storage and record low prices, all well beyond recent commodity forecasts. The drop in gas costs has been beneficial for families struggling during the recession, but the pricing downturn has all but stopped domestic exploration. Rig counts are very low, indicating that significant price recoveries will be required before new exploration and well development is initiated (See Figure 4). Excessive supplies and low price set the stage for price instability during any economic recovery. In addition, both carbon regulation and pricing differentials have already started fuel “switching” in select power generation markets. Finally, capital available for investment has fallen sharply, especially in North America. Any material economic recovery will create a risk that global gas markets will quickly move from an oversupply to an undersupply condition, and it will take a good deal of time for the supply side to right itself. The interim market would likely exhibit significant price instability and/or supply disruption until the market rebalances supply.



Sources: Baker Hughes, EIA (DOE), WTRG Economics

Figure 4: World Oil and Gas Rig Counts and Crude Oil Spot Prices

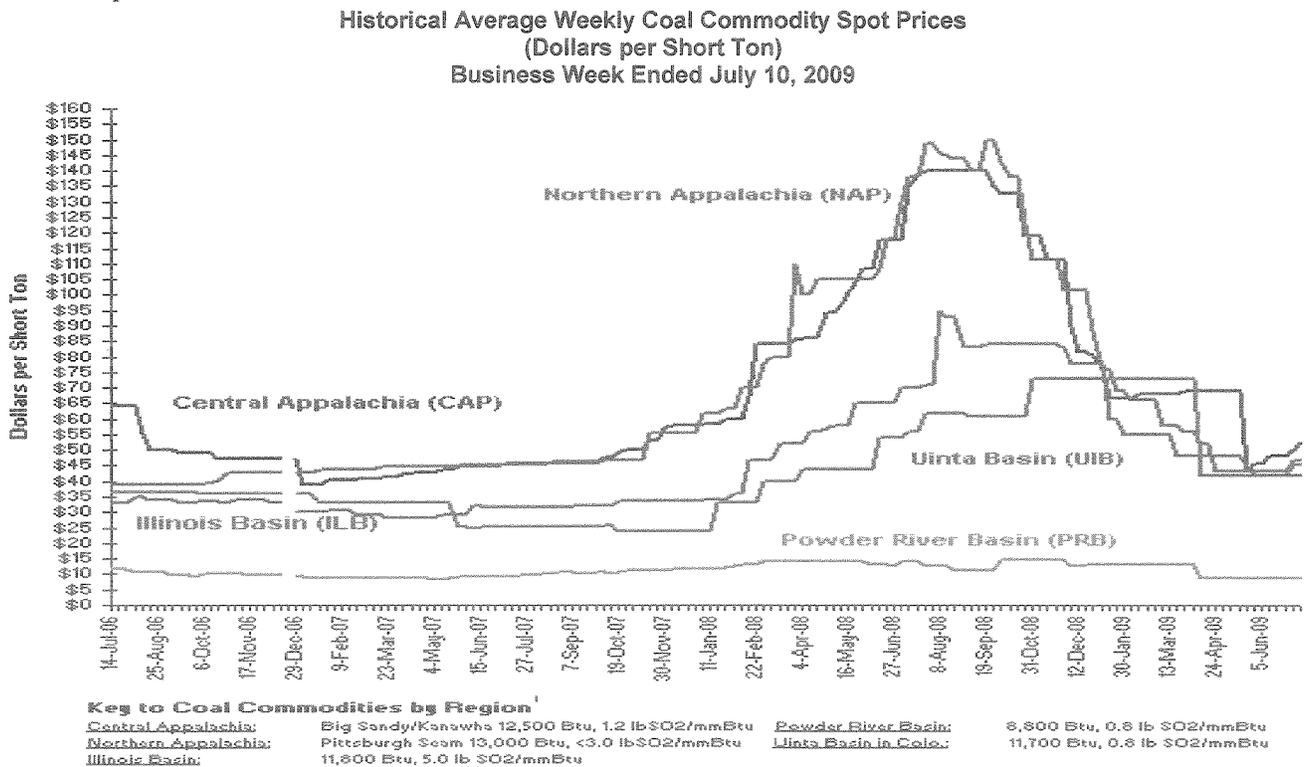
Oil

Oil markets are experiencing similar conditions. The declining demand allowed prices to drop below \$40 per barrel before a modest rebound to the \$50 to \$70 range. Like gas markets, capital investment has pinched out, inventories are growing, and existing fields are falling into disrepair in some parts of the globe because the national governments do not have the capital required to keep their fields in good operating condition. Unconventional liquids investment has also fallen sharply, as soft demand and low prices do not currently justify the high up-front capital required to start new projects.

The spread between demand and production capacity has grown from the mid 2008 low point, but like natural gas, a rapid world economic recovery is likely to drive prices sharply higher, and supply rebalancing is likely to require a great deal of time. Conventional oil market wisdom suggests that the industry will require investments of up to \$1 Trillion annually in order to maintain current levels of production (85 to 90 million bbl/day). Current oil sector global investment is well below that level, and national players like Russia, Mexico and Venezuela are experiencing falling production and an inability to borrow to properly service their fields, which is also fallout from the credit crunch.

Coal

US Coal prices have fallen from their historic highs in 2008, but prices have rebounded from period lows (See Figure 5). Exports fell almost 40%, while domestic demand fell by more than 40% during the first quarter.



Source: US EIA most recent coal report (July 16, 2009)

Figure 5: US Coal Price Trends

Domestic and world coal prices have held up a bit better than natural gas on a price change per btu basis. As a result, some gas switching is occurring at accelerating rates in some sectors of the domestic economy (electrical power generation). Global demands for electricity are off the charts, and expectations for international growth in coal use are all but guaranteed. For example, virtually all of

the new power plant construction in China (about 2 GW per week in new generation capacity) is based on fairly inefficient coal-burning power plant designs. EIA forecasts indicate that coal consumption in the developing nations is expected to substantially increase over the next 20 years (See Figure 6). Even though coal prices and production may show periods of softness, it is the expected global workhorse for energy production for the foreseeable future.

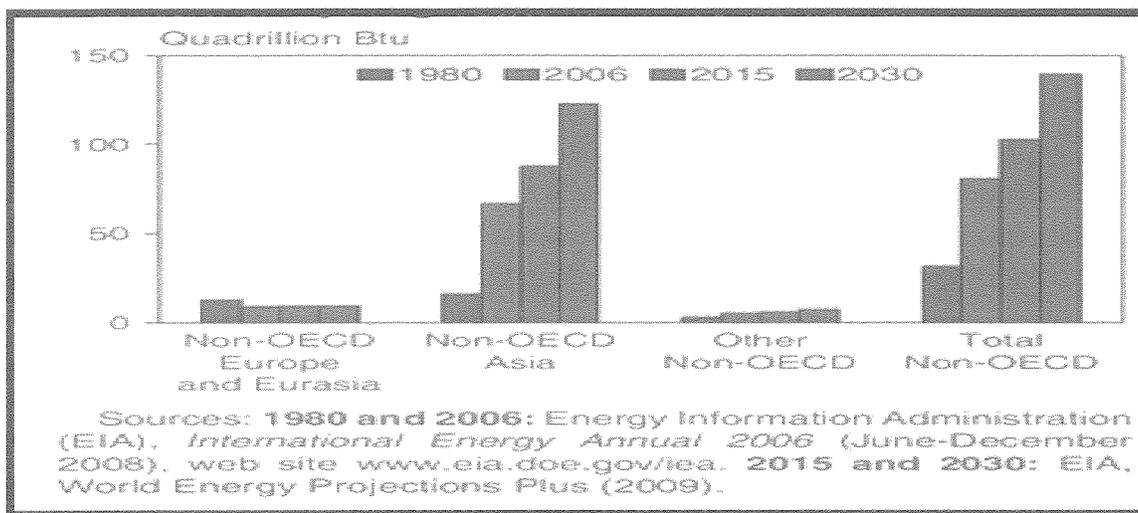


Figure 6: Non OECD Projected Coal Demand

In summary, the global recession has given the energy industry some demand relief, but the credit crunch has significantly reduced investment in existing asset maintenance and new field development. Based on the speed of the global recovery, this is expected to result in significant price instability and potential shortages in oil and gas supplies. The recovery will probably be led by the developing nations. Although we currently see excess supply of both oil and gas, the supply risk and expected price run-ups are driving the developing nations towards greater coal use as an energy source.

China is continuing to buy up global oil assets

In the past six months, China has purchased or contracted for approximately 20% of the world excess oil production capacity (about 1% of current global production). This includes more than \$50 Billion in direct asset purchases and/or loans to nations in return for substantial long-term commitments for oil output. In addition, China continues to deal with marginal oil-producing regimes like Sudan. Although the State Owned Enterprises in China that work the energy space have historically traded such assets on the world markets, they have the ability to withdraw that production for national use at any time. Part of this energy investment effort is a hedge against the current uncertainties with the dollar and an expression of China's desire to reduce its dollar exposure. But in our view, this further underscores our belief that China is serious in their resistance to any binding commitments to reduced carbon fuel use over the next 10 to 20 years.

If the developed nations reduce carbon fuel usage without corresponding cutbacks in developing nation carbon energy consumption growth rates, the developing nations will subsidize greater carbon fuel and energy usage by developing nations.

The projected cutbacks in EU and US carbon fuel usage will have a significant series of impacts on world energy supplies and costs. For example, EU and US reductions of 2% fuel usage annually – the expected average use rate reductions under recent House legislation – will collectively reduce global carbon energy demand by a significant amount. For example, during the recent oil price run-up, consumption of oil peaked at levels about 2% below estimated world production capacity. The

planned developed nation's cutbacks would reduce world oil demand by approximately 1% per year. This would tend to produce near-term softness in pricing and would tend to extend the life of existing oil reserves. Until significant reductions in carbon fuel usage take hold, price instability and potential supply shortfalls threaten both developed and developing national economies. But if use cuts are not allocated across the board, developed nations carbon use reductions will act to insulate the developing nations from the substantial supply and price risks we see today. Over time and absent binding energy use reduction targets, reduced developed nation use of carbon fuels will produce cheaper fuel costs for high energy consuming nations.

By embracing climate change management as a key element in our national environmental, energy and economic policies, we are probably initiating or intensifying a limited form of trade conflict with the developing nations.

If we have truly assumed the policy of avoiding global warming, we cannot resolve the problem without a global reduction in current carbon fuels use. Neither the developed nations nor the developing nations can resolve this problem on their own. Even if the developed nations eliminate the use of carbon fuels altogether in a very short period of time, it is likely that the developing nations will take up the slack. The result: we will not address the human-induced climate change problem. The "solution" will require the developing nations to develop a methodology for low-carbon development, just as the solution will require that the developed nations find a way to maintain economic health with progressively lower amounts of carbon-based fuels. No one has tried such efforts to date, and no one knows if such efforts can succeed. We have proposed an 83% reduction in domestic carbon fuels use over the next 40 years, with a 20% reduction target (2005 basis) by 2020. But the developing nations want a greater reduction rate sooner (40% reduction by 2020) before they will commit to any reductions at all.

The current energy policy changes suggested in the recent House action are based on a combination of reduced access to carbon fuels over time and an increased cost for the fuels that are available. In addition and at this point, alternative sources of energy are significantly more expensive than carbon fuels. Mandated reduced carbon fuel use requires more energy efficiency and/or more renewable energy use. The proposed energy policy will increase the costs of domestic energy use, no matter what the source. Extra-national energy costs will be determined by market forces, applicable regulations and treaty agreements.

A differential energy price and/or varying supply quantities between nations is an invitation to trade conflict. For example, the US foundry industry energy investment per pound of castings averages about \$0.04 per pound. The dry freight rates to ship castings from China to the US are currently about \$0.035 per pound. An 80% increase in domestic energy costs with no increase in foreign energy costs effectively allows foreign manufacturers to compete for US casting markets without a freight cost differential. The expected outcome of such gradients is a relocation of the industry to locations where energy costs are lower and the potential loss of up to 200,000 domestic manufacturing positions. International energy access and price differentials are trade advantages that will hurt or help the US manufacturing community, and should be considered with care.

China continues to expand their energy-intensive industrial infrastructure

Most Chinese industrial development over the last 15 years has been focused on heavy, energy-intensive industrial development, and energy inefficiencies are common in those industries (20 to 40% lower energy efficiencies than similar US and EU operations by some reports). Subsidies for heavy industries are common in China, and their public sector capital markets (state lending to State-Owned Enterprises) fail to meet western standards for transparency or fiscal responsibility (no GAAP). This

encourages interregional construction of excess capacity and biases investment towards heavy industry. In addition, the traditional “top-down” model for communist economic control has changed to a decentralizing model where provinces and cities make capital investment decisions with little heed to the national economy or environment. This further accelerates the construction of energy-intensive and energy inefficient industries. It is a bit ironic, but the national government might actually benefit from a treaty that forces them to act to limit unplanned regional economic expansion.

At the same time, the Chinese economy is moving closer to decoupling with western economies

China has reached a turning point in their own economic expansion, where a substantial fraction of their citizenry are now earning enough money to begin to afford the purchase of a series of energy-intensive machines that are the requisite for a rapidly increasing quality of life and energy intensity. Auto and appliance sales are up sharply and long-term growth is expected. Manufacturing decoupling looms as a real change in the relationship between the developed nations and China. At present, access to the US and EU markets is critical for China. They need our markets to create jobs in China today. In a decade or so, they won't. Our period of economic influence in China is waning.

TREATY NEGOTIATION CONSIDERATIONS

In a recent interview, Lead US climate change negotiator for the US Todd Stern was quoted as saying; “We don't expect China to take a national cap (on greenhouse gas emissions) at this stage.” Within the week, India's agriculture minister flatly refused to consider any national limits to carbon fuel consumption. At the recent G5 meeting, developing nations continued to call for substantial commitments of capital from the developed nations for mitigation and adaptation support, as well as technology transfer. The funding support requested is in the .5 to 1% of GDP range from developed nations. This “Green Fund” proposed by Mexico and endorsed by both the G5 and the G8, involved contributions by all nations assessed on the basis of their historical responsibility, current level of development and weighted per capita emissions.

What position should the US bring to the table at Copenhagen? Our involvement in a climate treaty should be contingent on the acceptance of carbon fuel use reductions by Europe, and Japan (highly likely), China (unlikely) and India (unlikely). If China and India do not agree with the analysis that climate change is man-caused and that it threatens their economies, then there will likely be no meaningful, substantive agreements from Copenhagen...just as we saw at Kyoto.

If the countries agree with climate science, then the US and China are the most critical players in crafting an agreement. If we withhold our support, there will be no treaty, as we are the largest carbon fuel consumer in the world. China and India know they face climate change issues, but they are probably better served near-term if they are out of any binding agreement. There needs to be a down side for developing nations if they choose not to participate.

The obvious developed nation tools to compel participation by the developing nations include no access to technologies and mitigation moneys, and limitations on access to developed nation markets (possibly some form of carbon tariffs). As noted earlier, this option will lose value over time. Beijing may need this level of compulsion in order for the central government to re-assert control over regional and local economic development and environmental control. Technical and financial support/technology transfer should be contingent on agreed-upon progress towards specific emission targets. The targets can be actual reductions or slower rates of energy consumption growth. Private sector resources can be harnessed by trading technology transfer support for longer-term carbon

credits. If a nation assists another nation in reduction of carbon emissions, carbon credits should be used as compensation.

Perhaps most importantly, any treaty should include acceptable energy metrics and use reduction verification processes, with meaningful penalties for non-compliance. In order for full technology transfer to occur efficiently, the developed nations will require further enhancements in international intellectual property protection before releasing newer energy conservation processes to developing nations. Finally, the accounting and tracking systems for business and governmental support are typically insufficient in developing nation economies. This allows government intervention – usually financial and/or regulatory in nature – to skew the competitive positioning of companies serving international markets. Financial support and tariff relief should go hand-in-hand with a degree of disclosure consistent with systems used by developed nations.

The upcoming climate negotiations face some extraordinary challenges. Our needs cannot be met if we commit to developed nation carbon fuel use reductions alone. Our domestic economic/energy concerns have been exacerbated by the increasing fragility of the world carbon fuel and finance markets. It would seem that our most likely path to success involves careful diplomacy, but we believe that our diplomacy needs to be supported with a “Roosevelt’s big stick”: continued access to free trade with the largest economies in the world.

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