MEMO TO COPENHAGEN:

COMMENTARY IS MISINFORMED—CHINA'S COMMITMENT IS SIGNIFICANT

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SUMMARY

China's pledge to reduce its carbon intensity by 45 percent by 2020 has been met with praise and criticism. We believe the critics have it wrong, and show in this paper that their criticism lacks knowledge and context. Their error is no minor academic skirmish: their criticism provides cover for the opponents of climate change action in the United States, and risks blocking effective climate action.

The Chinese commitment target is a strong one by any measure. No developing country in economic history—other than post-Mao China—has cut its energy-related greenhouse gas emissions growth so deeply for so long. For a developing country to legally bind itself to achieve such a target is surprising, and reflects China's fear of climate change.

Criticism of the Chinese goal stems in part from the fact that it allows Chinese per capita emissions to continue to grow. The Chinese government argues that China is a developing country where energy services are low and hundreds of millions of people continue to lead hardscrabble lives. Today, Americans produce four times more carbon dioxide per person than the Chinese. President Obama supports a U.S. reduction of its current emissions by almost 20 percent by 2020. If China implements its Copenhagen commitment and the United States implements President Obama's target, U.S. per capita emissions would still be double those of China in 2020.[1] It is dishonest to use China as an excuse for the United States not to take action.

It is, nevertheless, crucial for China to accept a cap on greenhouse gas emissions and to reduce them toward zero. Chinese economists and policy analysts suggest that the government might accept a cap beginning in 2025 and reducing emissions from that level by 30 percent or more by 2050. But by far, the most important thing China can do right now to avert catastrophic climate change is to implement the Copenhagen goal it has already proposed. Criticism of China's 2020 target is neither productive nor justified, and, if not a cynical ploy to avoid U.S. action, can be explained only by lazy scholarship or reflexive "China bashing."

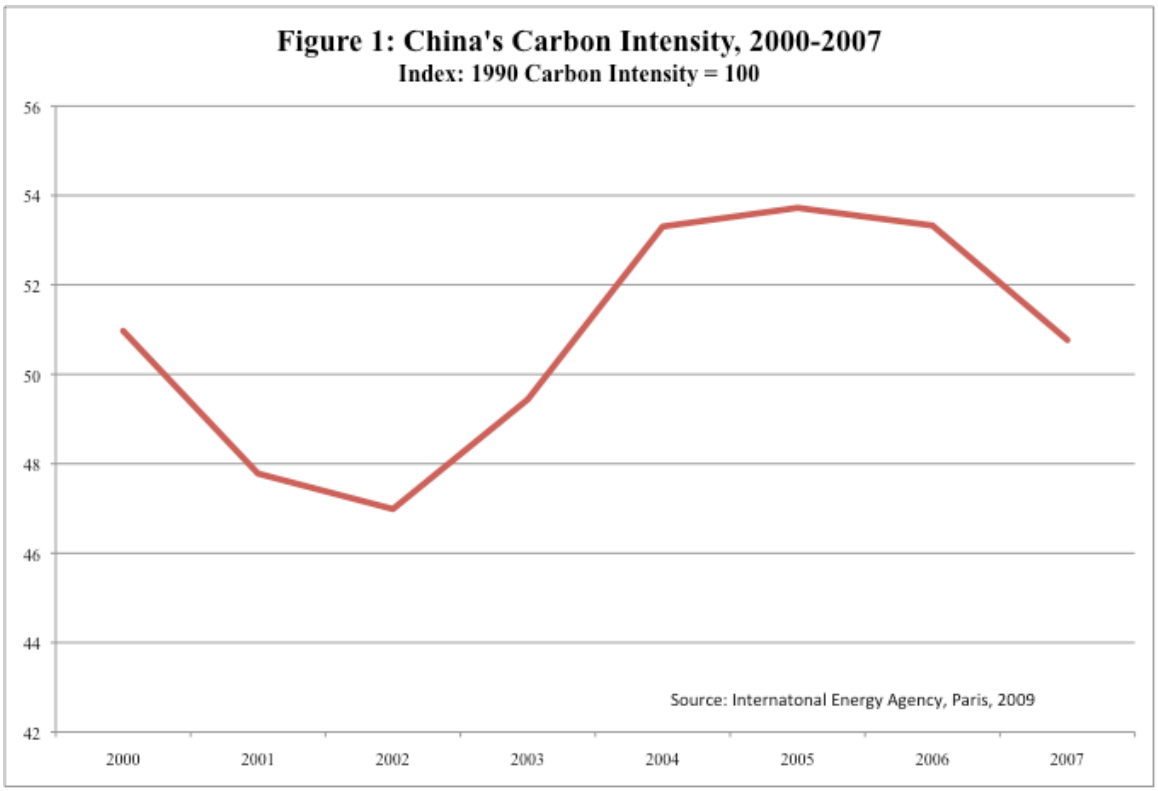
WHY THE CHINESE TARGET IS SIGNIFICANT

The main criticism leveled against the Chinese commitment is that it represents the status quo, or the continuation of current policies, measures, trends, and can be considered nothing more than "business-as-usual." This claim is demonstrably false.

First, a short digression is necessary to explain the Chinese carbon intensity target. Carbon intensity in this case means the amount of carbon dioxide emitted per unit of economic output (gross domestic product, or GDP). Because most carbon dioxide emissions in China are generated by fossil energy combustion, carbon intensity is very closely related to energy intensity. The carbon intensity of an economy is a matter of energy end-use efficiency, the share of economic output generated by heavy, energy-intensive industry, and the income

[1] International Energy Agency, *World Energy Outlook 2009* (Paris: Organisation for Economic Co-operation and Development, 2009).

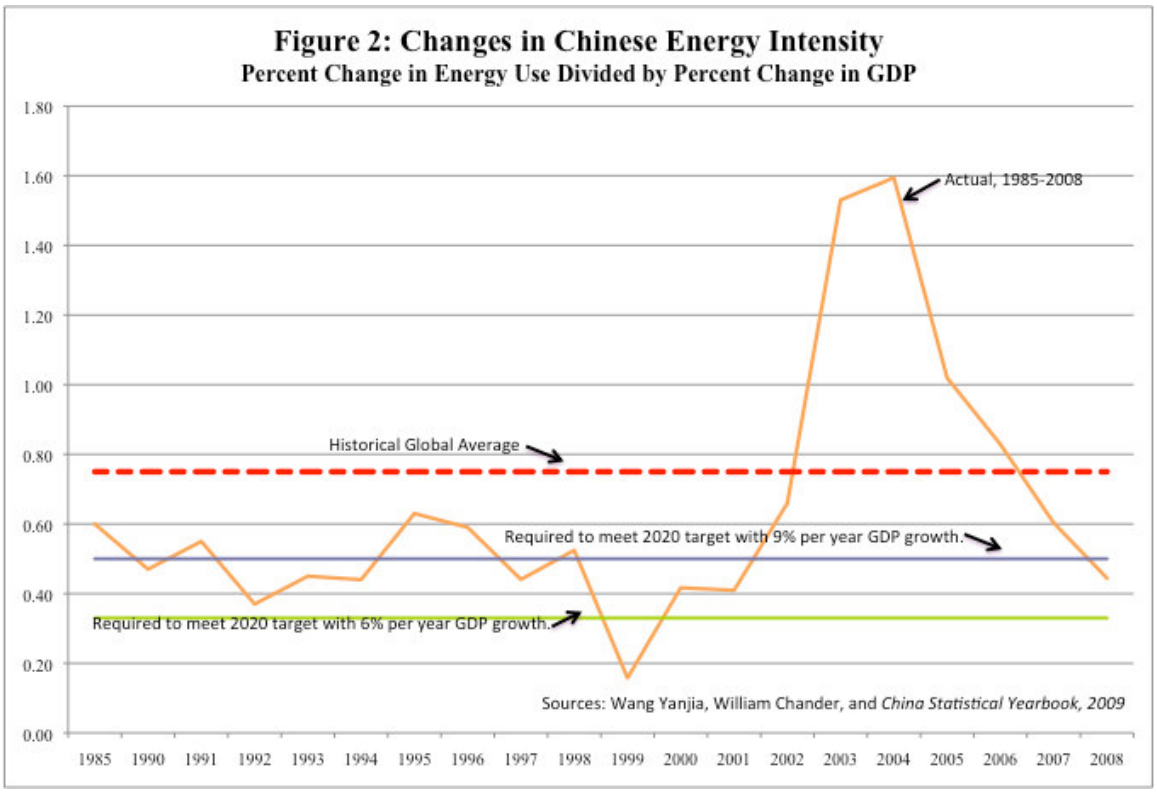
levels and behavior of consumers. Even though Chinese consumers use far less energy in their homes and cars, China's energy and carbon intensity is comparatively high because its factories are relatively inefficient and its economy has a high share of heavy industry.



Energy or carbon intensity can change year by year. Economists express this relationship in the language of "energy-GDP elasticity," which is simply the ratio of growth in energy to growth in the economy. If energy use doubles while the economy doubles, the ratio—the elasticity—is one. While the energy-GDP elasticity of developing countries normally averages 1.0 to 1.5 , throughout economic history, developing countries have typically increased energy use faster than GDP. Doubling GDP over time required doubling or even tripling energy use and carbon emissions.

What about the claim that China's Copenhagen target requires nothing more than maintaining current policy, and that China need do nothing more than what it is already doing? That claim is incorrect (see Figures 1 and 2).

China's Copenhagen target would require China to achieve a rate of carbon intensity reduction of 4 percent per year. If GDP growth is 8 percent per year for the next decade, then the elasticity must be 0.5. However, if GDP growth is only 6 percent, then the elasticity must be only 0.33. China's target is politically risky because it is independent of GDP growth, and a slow growth rate would make it harder to reach. That is simply because growth adds new, more efficient infrastructure, and the higher the growth rate, the larger the share of new, efficient capital equipment is in the whole economy. A slow growth rate would require a write-off of existing capital. Simply put, that means more forced closures of existing factories.



China once before did achieve a high rate of energy (and carbon) intensity reduction over a long period of time. In the 1980s and 1990s, post-Mao China was exceptionally wasteful in energy use, as were all centrally planned economies. Reform, restructuring, energy shortages, and exceptionally strong regulation enabled China to make rapid reductions in energy and, therefore, carbon intensity.

But China's economy has not performed well over the last decade in reducing energy and carbon intensity. Intensity turned sharply upward in 2001 and got worse each year through 2006.[2] Energy and emissions increased much faster than the economy between the years 2000 – 2005. Technically speaking, the energy and carbon GDP elasticity was well above unity.

Only a draconian effort to reduce energy intensity by 20 percent by 2010 reversed that trend. The Chinese central government imposed a five-year policy to reduce year 2010 energy intensity by 20 percent relative to 2005. The policy is decided by the central government, but is implemented by provincial and city governments, who see it as a drag on GDP growth and a weight around the neck of local development plans. That policy is set to expire next year.[3]

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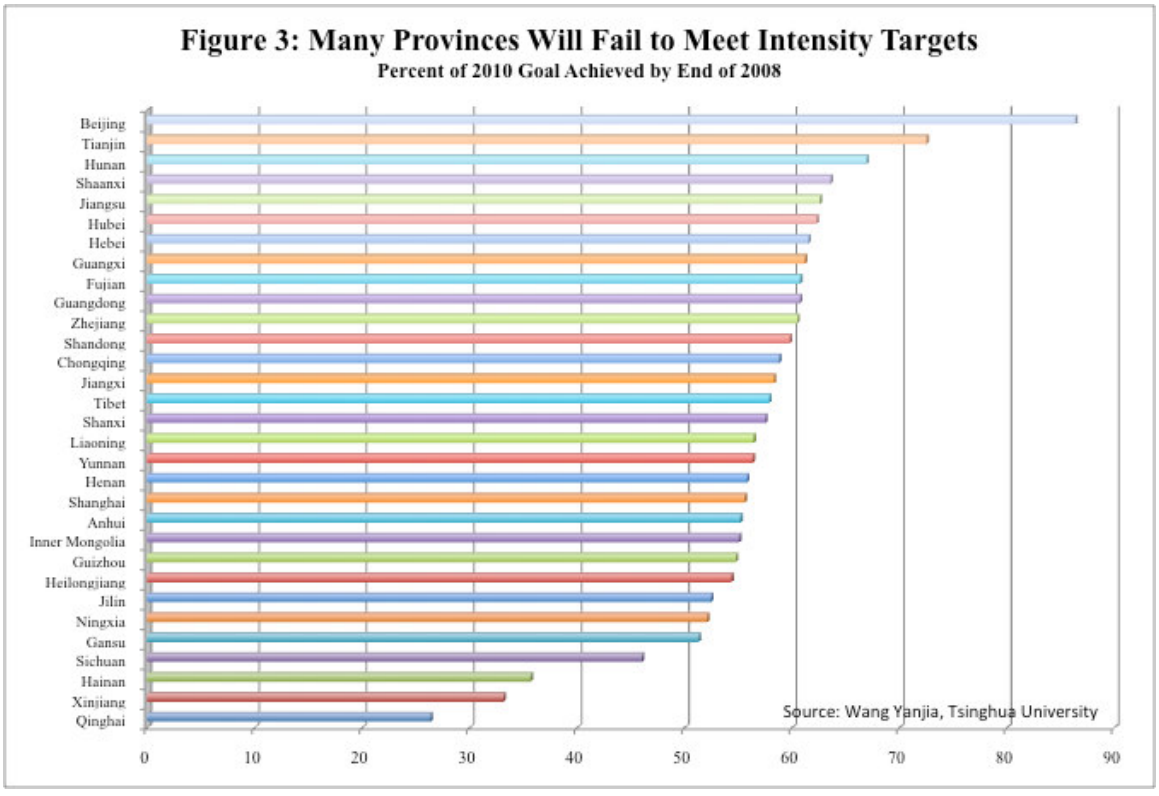
[2] William Chandler and Holly Gwin, "China's Energy and Emissions: A Turning Point?" Pacific Northwest National Laboratory (PNWD-SA-6548), 2004.

[3] Source: Comments made by provincial leaders in workshops in Guangzhou, Guangdong, Kunming, and Yunnan, conducted by the Energy Research Institute of the National Development and Reform Commissions, 2008 and 2009, project report to the Rockefeller Brothers Foundation, 2009.

Structural change was expected to contribute significantly to energy intensity reduction in China during this decade. That is, heavy industry was expected to decline significantly as a share of GDP. But in reality, primary (heavy, energy intensive) industry has declined only from 12 percent of GDP to 11 percent of GDP. Tertiary or light manufacturing has not increased its share at all. Meanwhile, the output of steel, cement, and chemicals has exploded, with cement production more than doubling and steel production almost tripling, compared to 2000.

Only in the last two years has China been able to slow energy and emissions growth below that of GDP. China has since 2001 achieved nothing approaching its Copenhagen goal, with the exception of the recession year of 2008. One of course must be careful about drawing conclusions from the 2008 data due to the global economic crisis. For example, citations that Chinese electricity demand fell by a "staggering" 7.1 percent in the fourth quarter of 2008, are taken grossly out of context.[4]

Moreover, many of the provinces are unlikely to meet their current targets, and can be expected to oppose their continuation and strengthening see Figure 3).



The current energy intensity policy (which the author of this paper has supported) can legitimately be described as severe, even draconian. The policy imposes hundreds of detailed industrial efficiency standards to a degree unparalleled in any other country in the world. The policy has forced closure of tens of thousands of factories, power plants, and production

[4] IEA 2009, p. 157.

lines that failed to meet the standards. It is unimaginable that such a policy could ever be enacted in the United States, much less be continued for another decade. It's a non-trivial error to call it a "reference case," as the IEA has done.

The International Energy Agency (IEA) bears some responsibility for confusing newcomers to the climate policy field. The IEA's annual report, *World Energy Outlook,* includes misleading scenarios of global climate policy options. The basic problem is that the IEA constructed a "reference scenario" or base case of future emissions based on "current policies." This method of construction of what IEA calls the "reference scenario" assumes the continuation of China's recent energy intensity reduction measures. Similarly, the European Union's "20-20-20" Copenhagen commitment was included in the reference case—because it had already been decided.[5] IEA's practice rewards sloth and penalizes responsibility. For example, *World Energy Outlook 2009* mentions the Waxman-Markey legislation but did not include its goal of a 17 percent emissions reduction by 2020 because it has not been passed and signed into law. If it had, it would have been included in the reference case. In this way, countries that have made strenuous commitments for Copenhagen are perversely punished for having taken action.

The IEA is not entirely to blame for the misinterpretation of its analysis. The agency clearly explains its reference case by writing that "The Reference Case is most definitely not a forecast but a baseline picture of how global energy markets would evolve if governments make no changes to their existing policies and measures."[6]

One problem, however, is that China has not in fact extended the policy measures that the IEA assumes it has. Indeed, the data show it has not even achieved the goals of those energy intensity reduction policies. The energy policy of the next five-year plan is due to be announced later this winter, and will likely include the aggressive conservation and clean energy measures the IEA assumes it will. But that decision was never a foregone conclusion. To those who follow Chinese energy policy, it is well known that many Chinese provinces have fought to weaken the government's energy intensity policies. It is counterfactual to describe those as the reference case or status quo. The IEA may be right that the central government will prevail and the policy will be extended, but the IEA readily acknowledges that doing so will be difficult.

Indeed, the IEA has praised China's carbon intensity commitment, calling it "significant." Chief economist Fatih Birol estimated that China's commitment would reduce projected emissions by 1 billion tons, and that its Copenhagen commitment would "… put China at the forefront of the fight against climate change."[7]

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[5] The term refers to European Union goals of cutting emissions, increasing efficiency, and adding renewable energy by (or to) 20 percent by the year 2020. See ec.europa.eu/commission, 2009.

[6] IEA 2009, p. 73.

[7] See Marlowe Hood, Agence France Presse, "China's Pledge to Meet a Quarter of Global Needs: IEA," November 26, 2009.

CONCLUSION

This review of China's record and a brief economic history suggest that China's offer to the Copenhagen summit is significant. The global community should grab this offer without hesitation in order to lock in China's commitment in time for China to include it in the next five-year plan. The United States also needs now to step up and show leadership or risk falling far behind China as a global leader on a crucial issue. China's Copenhagen commitment puts pressure on the U.S. Congress to act.

The IEA could help clarify the situation by issuing a formal statement clarifying its scenarios and their meaning. It should also help analysts around the world to understand the strange construction of its reference case in *World Energy Outlook* by making that publication (which costs $150) free online.

The official delegations meeting in Copenhagen would do well to embrace the Chinese offer for action during the next ten years, and to encourage the Chinese government to set a cap on its emissions soon thereafter. Most importantly, the U.S. government should respond to the Chinese governments show of leadership by making its own strong commitment to greenhouse gas emissions mitigation.

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