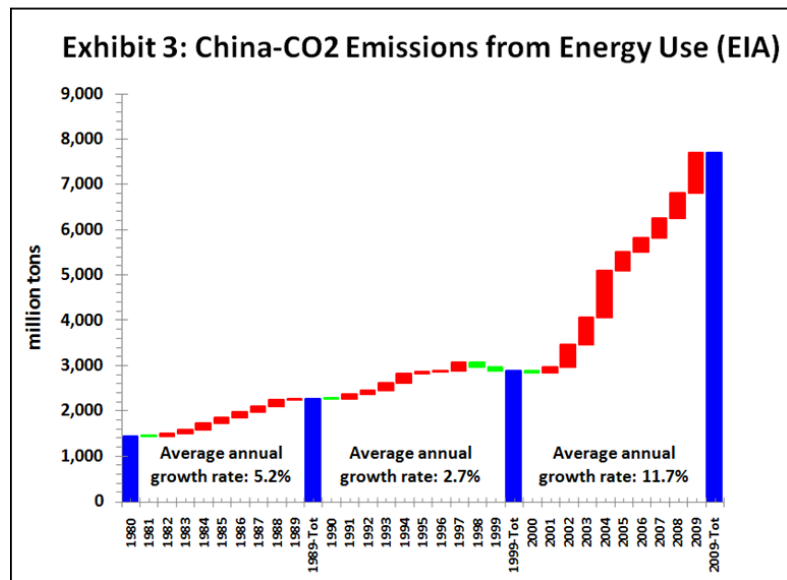
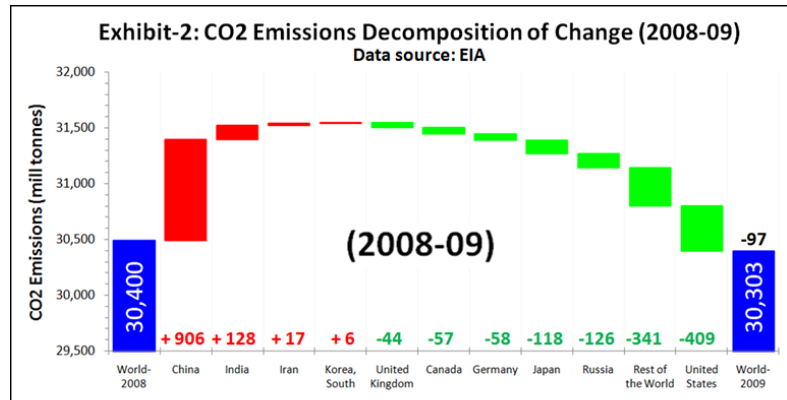


China's Contribution to Global CO2 Emissions

The Chinese themselves are the most immediate victims of this economic-environmental policy, as air pollution levels soar. But the impacts are global, pitting China against the rest of the world in the battle over CO2 reduction. Almost singlehandedly, China negated global emissions reductions last year. Data shows that global CO2 emissions from energy use stabilized during 2008 and 2009 (in fact, it declined by 97 million tons, or 0.3%), but the six top emitters (US, Russia, Japan, Germany, Canada and UK) and the rest of the world together reduced their CO2 emissions by 1.15 billion tons. China's 906 million tons, combined with increases from India, Iran and South Korea, totaled a 1.06 billion ton increase in emissions. On net, the world made no gains (Exhibit-2).

Whence the change?

The source of China's current economic-environmental woes is easy to pinpoint. China joined the World Trade Organization (WTO) in 2001, signaling a new interest in export-oriented growth. That same year, emissions began a steady rise (Exhibit-3). Only four

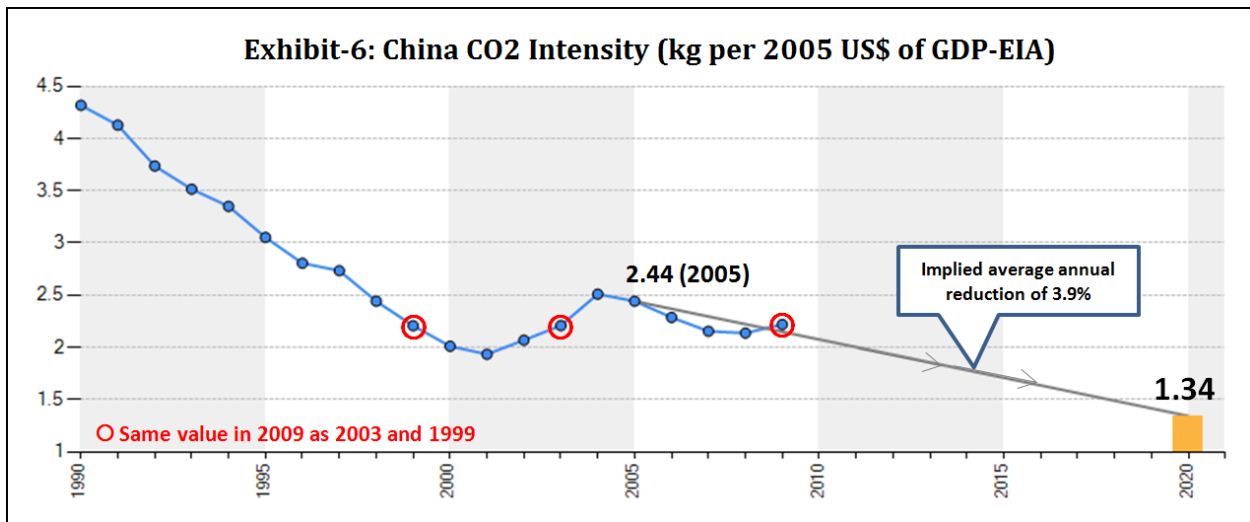


years later, the already devalued Yuan dipped even lower, dropping from just over 8 RMB per USD to under 7 by 2008. China's currency control played a major role in boosting exports, but it also correlates with an increasing concentration of global CO2 emissions in China. This concentration can be calculated on what economists call the Herfindahl Index¹ (Exhibit-4), which shows spikes when monopolistic conditions arise and sinks when a larger number of

¹ Herfindahl Index is used for analyzing the level of competition in a market using market share of each firm. It is calculated as the sum of the square of each company's market share. We apply the same index using each countries CO2 emissions share for the top 50 emitters for the period 1980-2009. We are most interested in the trend, and as shown in Exhibit-3, the increasing trend from 2001 implies that the share of CO2 emissions from a large country like China has become a dominant contributor, and is large enough to shift the direction of the index.

To address its rapidly rising emissions, in Nov 2009, China announced its intention to reduce CO2 intensity from 2005 levels by 40-45% by 2020. This target, though impressive on paper, represents the status quo. Between 2005 and 2008 China’s average annual CO2 intensity reduction rate was 4.35%. At that rate, emissions would shrink by 45% in around 13 years – by 2018. Maintaining the 4.35% reduction rate would not require any additional effort on China’s part. But the 2020 goal only requires a 3.9% annual reduction. China is not just setting itself up for a business-as-usual carbon intensity reduction plan; it has committed to a lazier plan, allowing its emissions to continue increasing for an extended period of time (Exhibit-6).

[Roger Pielke](#) of University of Colorado, Boulder and [Michael Levi](#) from the Council of Foreign Affairs have been questioning the sufficiency of China’s efforts for years. Analysis of EIA data lends quantitative credence to their position. While China gains accolades for its targets and results (Seligsohn and Levin 2010; Houser 2010), data analysis clearly demonstrates that a 45% reduction in carbon intensity by 2020 will be insufficient to tackle the rate at which total CO2 emissions is currently increasing in China.



If the discrepancy between China’s Government projections² and actual data are any indication, the country has long been aware that its development policy contributed to the problem, and its proposed solutions cannot solve it. Excessive CO2 emissions are driven by the increasing rate of output from energy intensive industries tied directly and indirectly to exports (it is important to bear

	Exhibit-7: Strategy Report – Scenario A 2020	Actual 2005
Output of main energy intensive products		
Iron and steel (m tons)	280	352
Cement (m tons)	1070	1060
Synthetic ammonia (10,000 tons)	4000	4222 (2004)

² The primary source for the information cited is (Sheehan and Sun 2006): National Development Research Centre (NDRC) (2004), *China National Energy Strategy and Policy to 2020: Subtitle 2: Scenario Analysis on Energy Demand*, Beijing.

