

**Comments on
“China and India in Energy Markets and its
Implications for Global Greenhouse Gas Emissions”
by S. Paltsev and J. Reilly**

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- The paper provides estimates of energy use and greenhouse gas (GHG) emissions in China and India. It uses the MIT Emissions Prediction and Policy Analysis (EPPA) model to come up with estimates from 2005 to 2025.
- Several scenarios are considered:
- In the baseline projections, China and India energy use will be roughly doubled from 2005-2025. In the more rapid growth case, China about 4 times, India nearly 5 times.
- In the baseline projections, China and India's share in world energy use is projected to be 0.17% in 2005; this increases to 0.21% in 2025. (17%, 21%?)
- Their share in world CO₂ emissions from fossil fuels is projected to increase from 21% in 2005 to 27% in 2025 (assuming the rest of the world does not adopt any climate policy during the period).
- The authors also discuss the interaction between world energy market and the growth of China and India.
- Very interesting and useful paper.

Some comments:

- (1) As with any forecasting model, forecasts made are highly dependent on the structure of the model.

Instead of referring the readers to a complementary paper (Paltsev et al., 2005) on page 7 (2nd paragraph), it would help if the authors provide more details on how the energy sectors (e.g., coal) are modeled and how the energy sectors (listed on Table 6) are inter-related.

As the authors note, “[b]ottom-up engineering details are incorporated...” more detail would help the reader understand how these markets are modeled.

(2) It would also be of interest to readers how the forecasts would change if the model did allow for the potential development/emergence/adoption of new technologies (e.g., clean coal technology) to combat pollution.

It is not clear whether the autonomous energy efficiency improvement (AEEI) factor would capture this, see page 13. Please comment. Even no actual forecasts are made, it would be better if the authors can comment on how sensitive the forecasts are to the assumption that existing technologies will continue to be used till 2025 (i.e., no new technologies would be developed and adopted).

This discussion would be a good prelude to an extensive discussion of what China and India are currently doing to address their pollution problems and what they are currently doing to come up with new pollution prevention technologies.

(3) On the data.

China: Fossil fuel use in 2000 = GDP * Fossil fuel energy intensity
= 4483 * 0.55 = 2465.65

India: Fossil fuel use in 2000 = GDP * Fossil fuel energy intensity
= 1924 * 1.25 = 2405

About the same.

CDIAC-----GHG emissions from Fossil-fuel CO₂

2003 China/India=3822/1211=3.16

IEA----- 2004

China/India=4769/1103=4.32

Why?

Also, China develops manufacture industry, energy intensity decreases;

India develops services industry, energy intensity increases.

(4) Table 9, baseline scenario estimation, the growth rate for China, 2005-2009, 5.4%; 2010-2014, 5.0% Seems low.

Trend is important

Quantities also important

(5) About energy use and accuracy of China's GDP statistics. Not particularly on the paper.

Thomas G. RAWSKI, What is happening to China's GDP statistics? *China Economic Review* 12 (2001) 347–354.

The author speculates that cumulative GDP growth during 1997/2001 was no more than one-third of official claims, and possibly much smaller. The yearbook figures imply that real GDP grew by 24.7% between 1997 and 2000. During the same 3 years, energy consumption dropped by 12.8%.