

Friedrich Hayek: Prices and Sustainable Development



Friedrich Hayek, 1899-1992.
“The Use Of Knowledge in Society,” (September 1945) explains the role of market prices in building what Hayek considered to be sustainable societies and economies. Hayek won the Nobel Prize for economics in 1974.

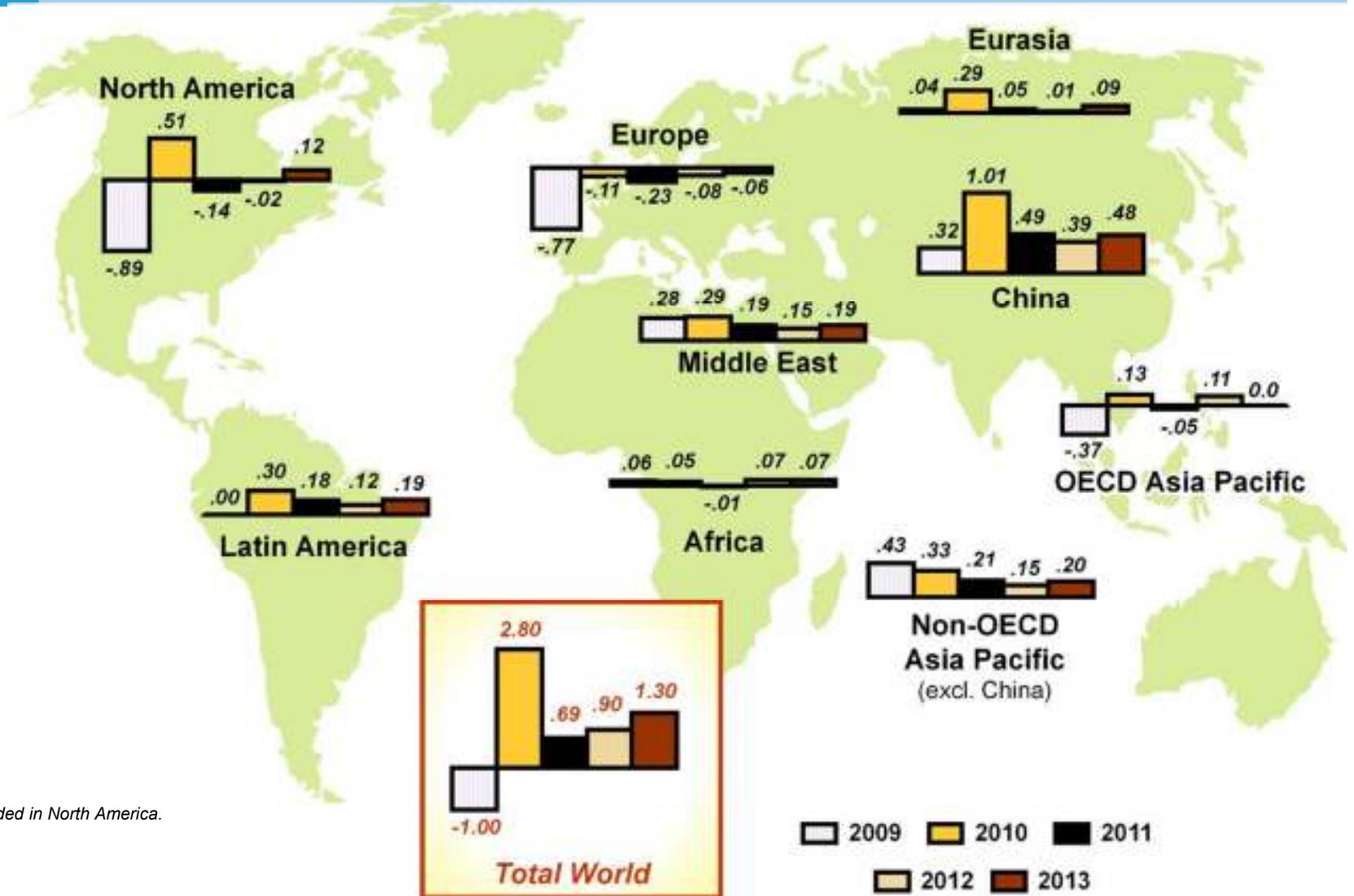
- Hayek?! But, what is ‘sustainability’? Do not *waste*.
- Information: No one knows all.
- Markets: you don’t need to know all!
- Signals are clear to all via market prices.
- Alternative is not sustainable:
 - Efficiency losses & waste
 - Goods not supplied
 - Missed opportunities to improve living standards

Bridging Domestic and Int'l Energy Market Systems

- Market pricing → a sustainable energy future.
- Prices: information & signals, not mere “costs”
 - Conserve, switch fuels, use energy wisely.
 - Choose China market; reduce costs, innovate. Energy security.
- Chinese companies disadvantaged: import prices vs. domestic market.

Changes in World Oil Demand by Region

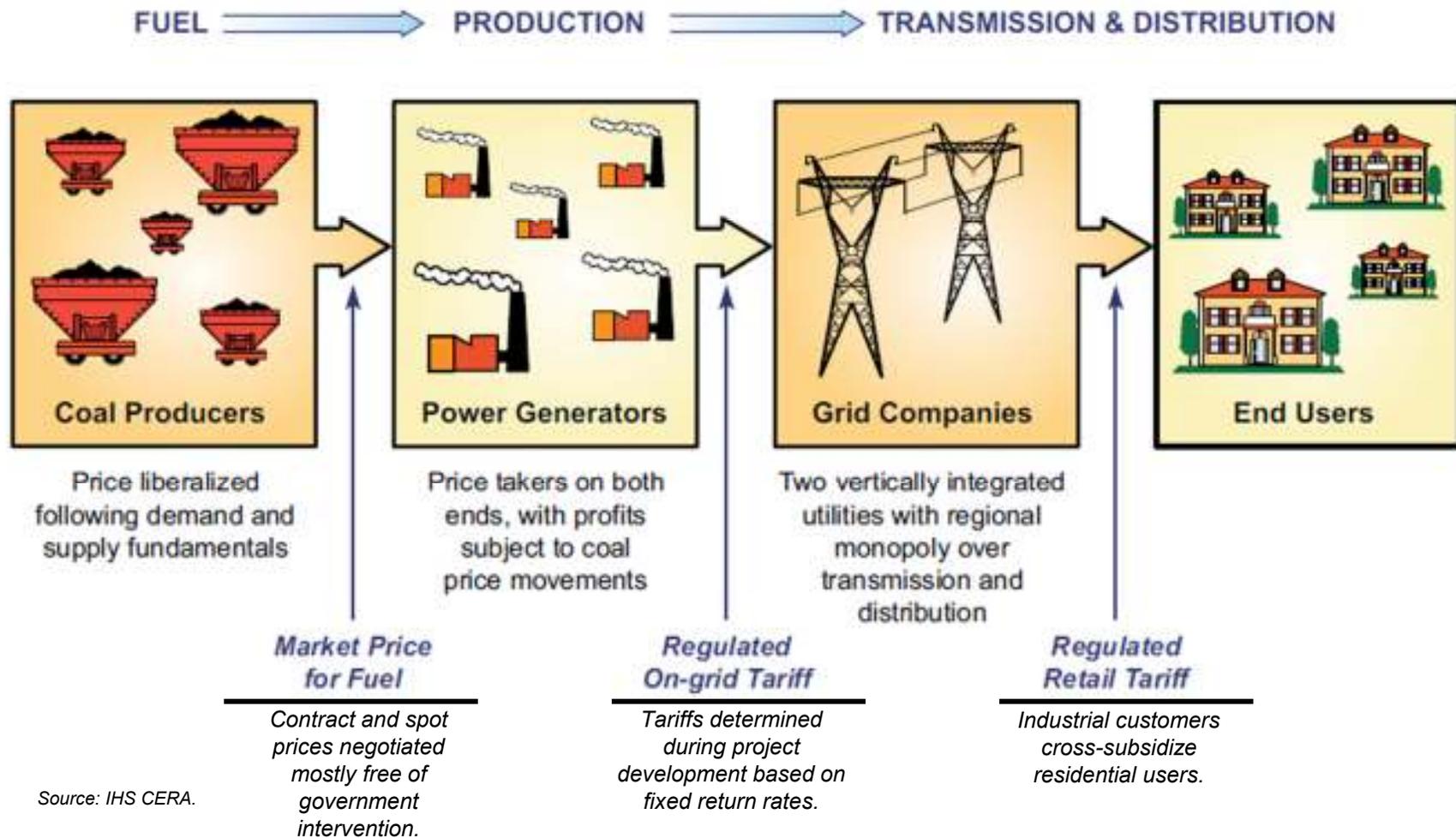
(volume change from previous year in million barrels per day)



Source: IHS CERA.
Note: Mexico is included in North America.
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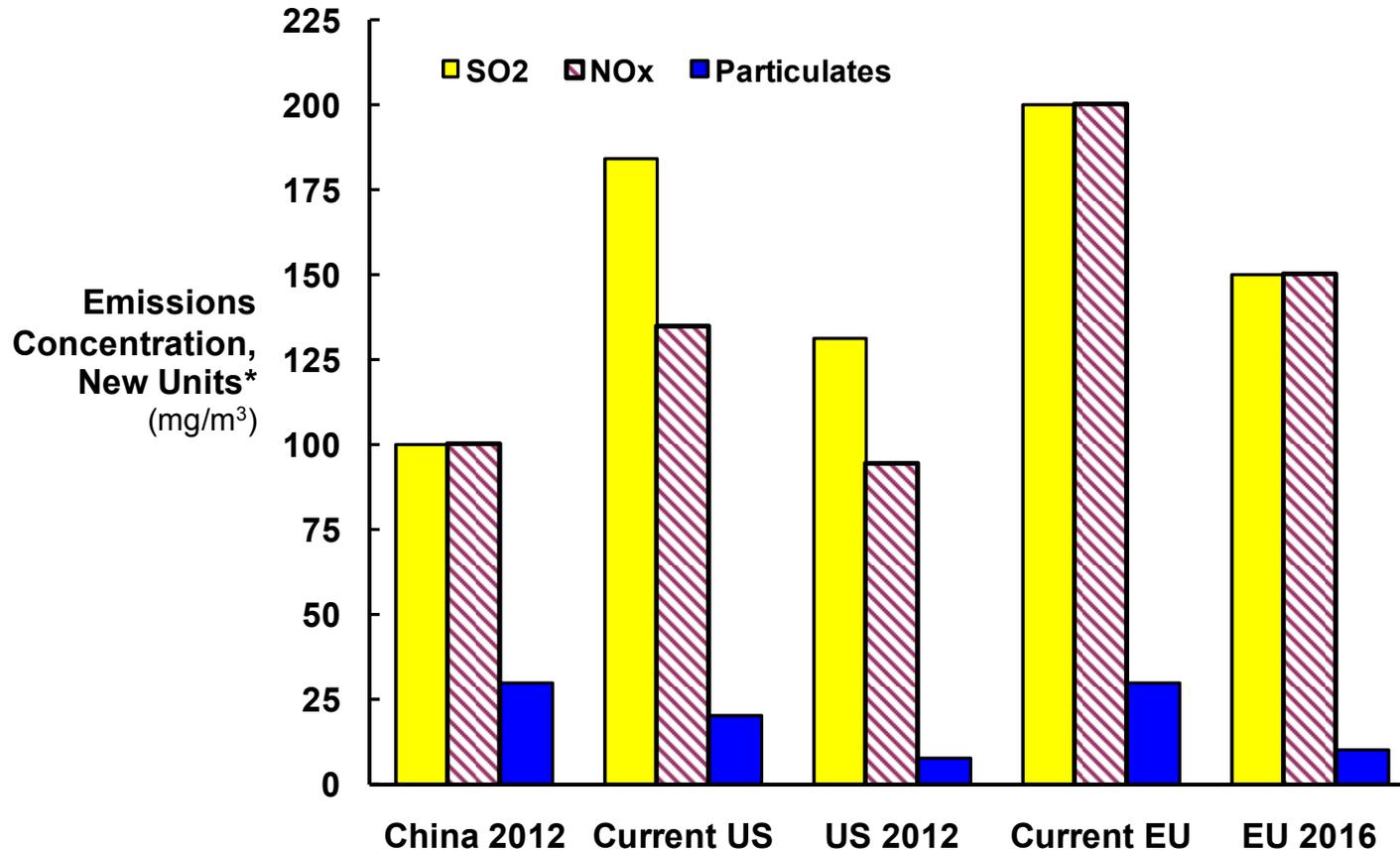
Price Distortions in the Power Market Value Chain:

Liberalized Fuel Prices; Strictly Regulated Tariffs



Source: IHS CERA.

...And They Are Very Stringent When Compared Globally



Source: IHS CERA.

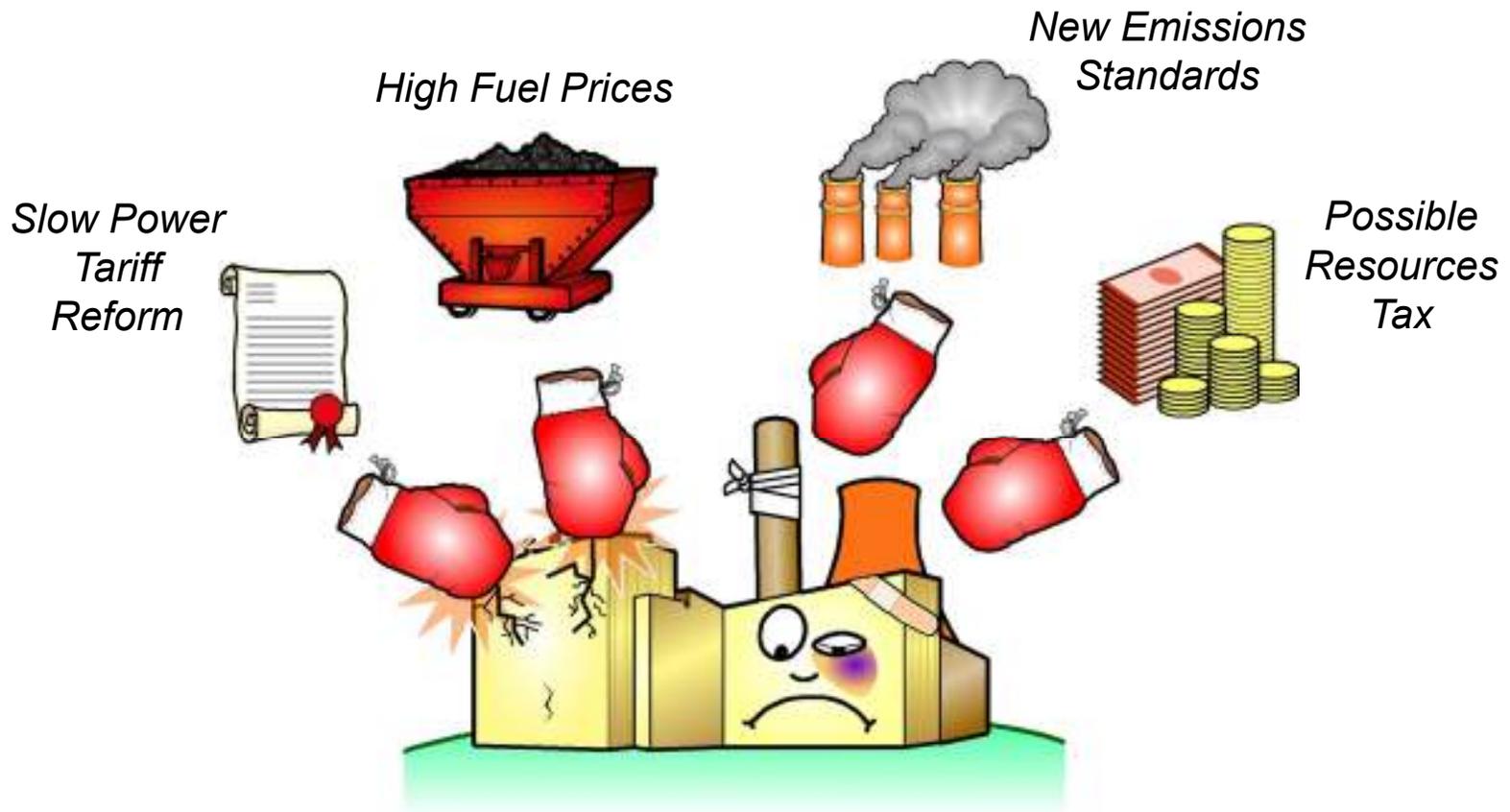
*All standards are for new build including retrofit and extension (with the exception of NO_x under the current rules in the United States, which do not include retrofit). The 2012 US standards are based on the Environmental Protection Agency's new emissions rules, which are slated to be finalized in December 2011. The 2012 US emissions rules also propose a combined standard for NO_x and carbon monoxide, which is an alternative to the NO_x standard displayed in the figure. Current EU standards are based on the 2001 Large Combustion Plant Directive (LCPD) for units larger than 300 MWe in size. The 2016 EU standards are based on the new Industrial Emissions Directive, which will supersede the LCPD in 2016.

Source: IHS CERA.

Significant Investment Will Be Required, but How Will Generators Be Compensated?

- A majority of the power plants today have FGD equipment installed, but many of these will need modifications to comply by July 2014. Future capacity additions will also need to add FGD technology.
 - Our current estimated capital cost for wet FGD installation in existing and new units up to 2015 is **US\$7 billion at US\$23 per kilowatt (kW)**.
- Future as well as most of the existing power plants will need selective catalytic reduction (SCR) equipment installed.
 - Estimated capital cost for SCR installation for existing and new units up to 2015 is **US\$8 billion at US\$10 per kW**.

Power Generators Now Facing Myriad Current and Near-term Cost Pressures



Conclusion

More Hayek!

Government already taking steps, coal and oil.

China is the engine for economic growth

China has to change its pricing model to avoid waste,
secure sustainable development and secure Green Growth

