Life after Fukushima

The Impact of Fukushima on the Far East's electricity markets

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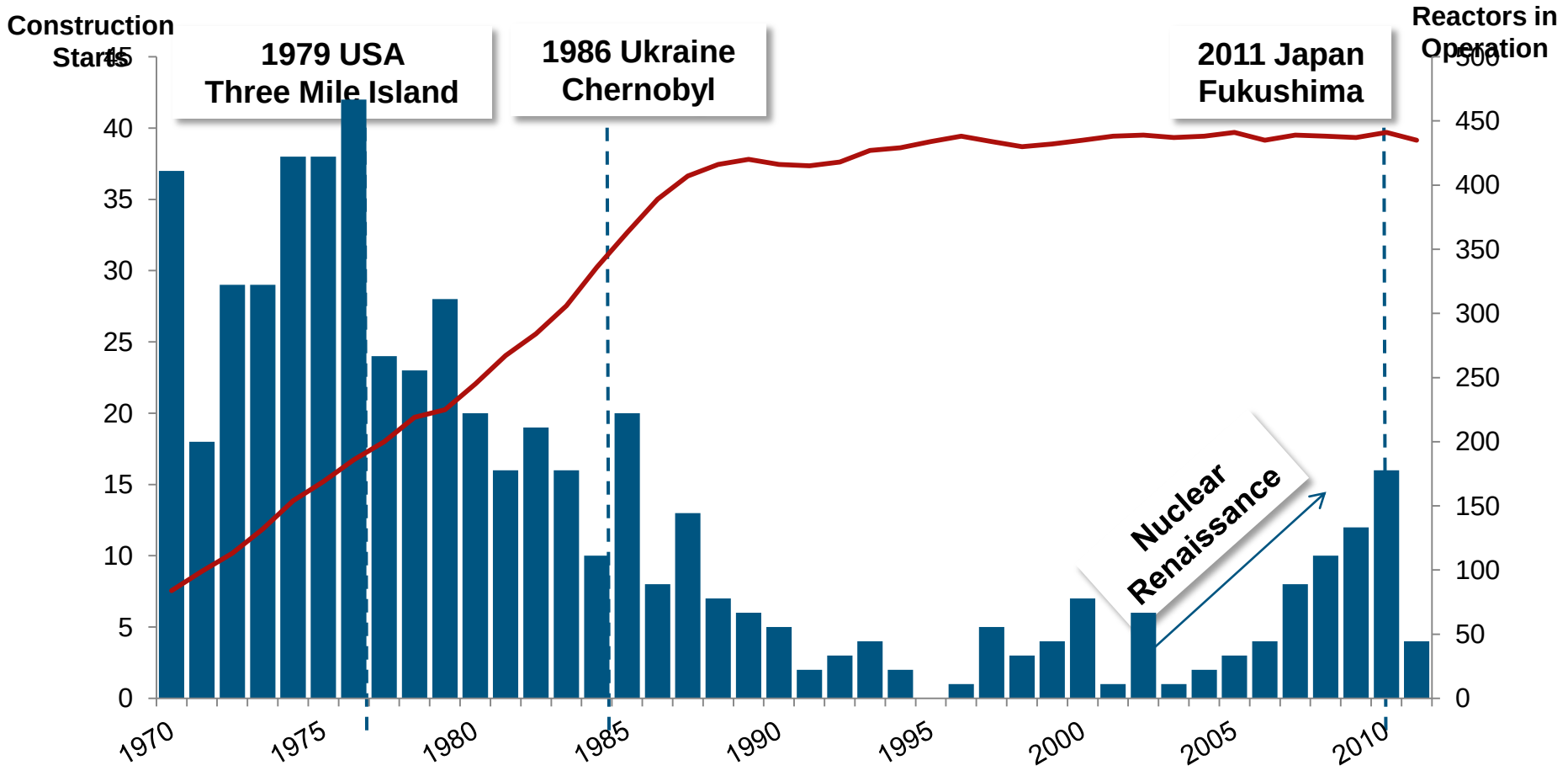
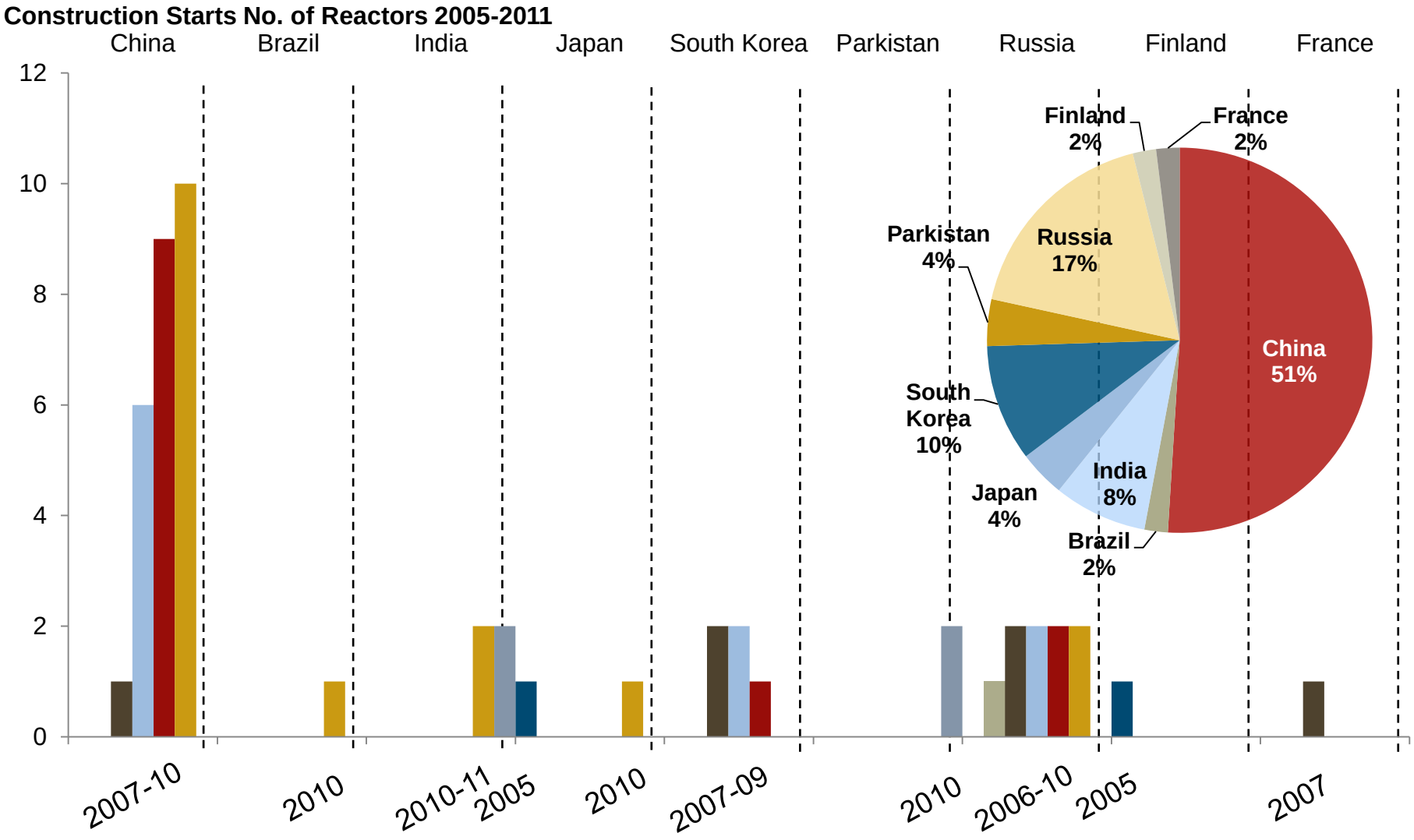
The Fukushima disaster came at the beginning of a potential “nuclear renaissance”



Source: IAEA Nuclear Power Reactors in the World 2012 Edition

So what has changed?

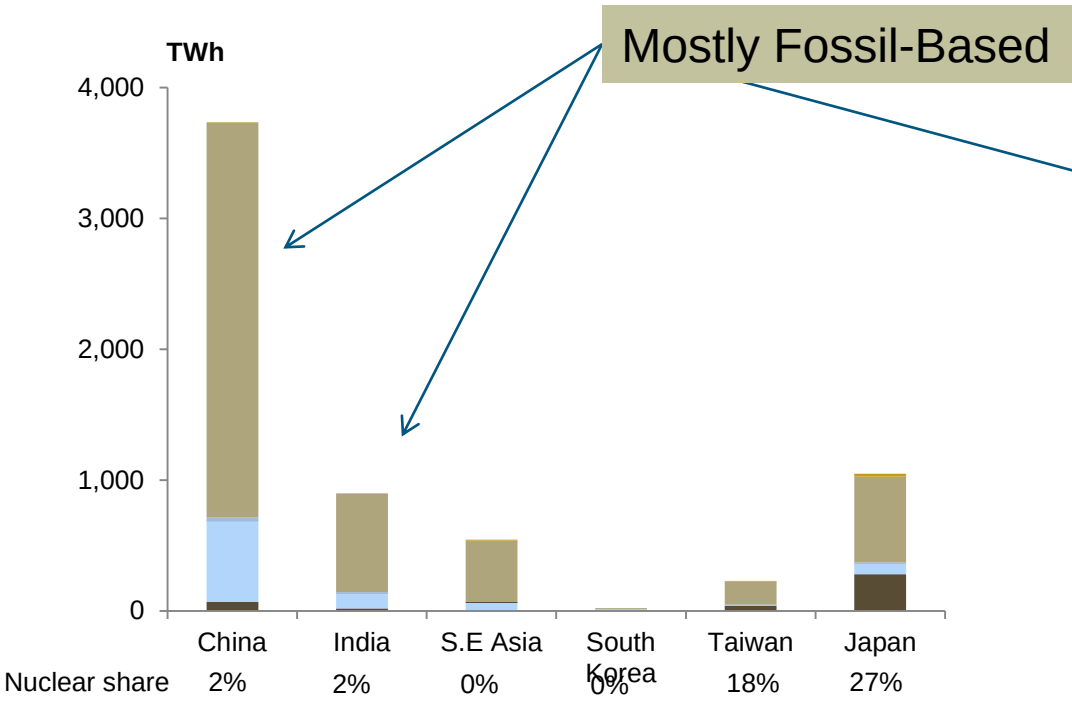
First, the nuclear renaissance was mainly about China, at least for this decade



Source: IAEA Nuclear Power Reactors in the World 2012 Edition

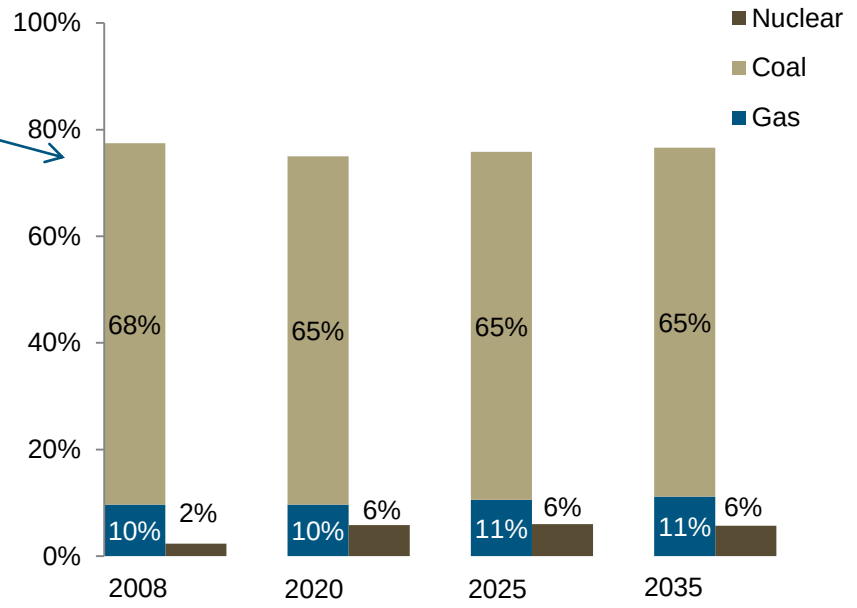
Second, in China—as throughout Asia—nuclear power is just a small piece of a much larger puzzle

Generation fuel mix 2009



Source: IEA Electricity Information 2011

Non-OECD Asia Generation Mix Projection (Current carbon policy scenario)1



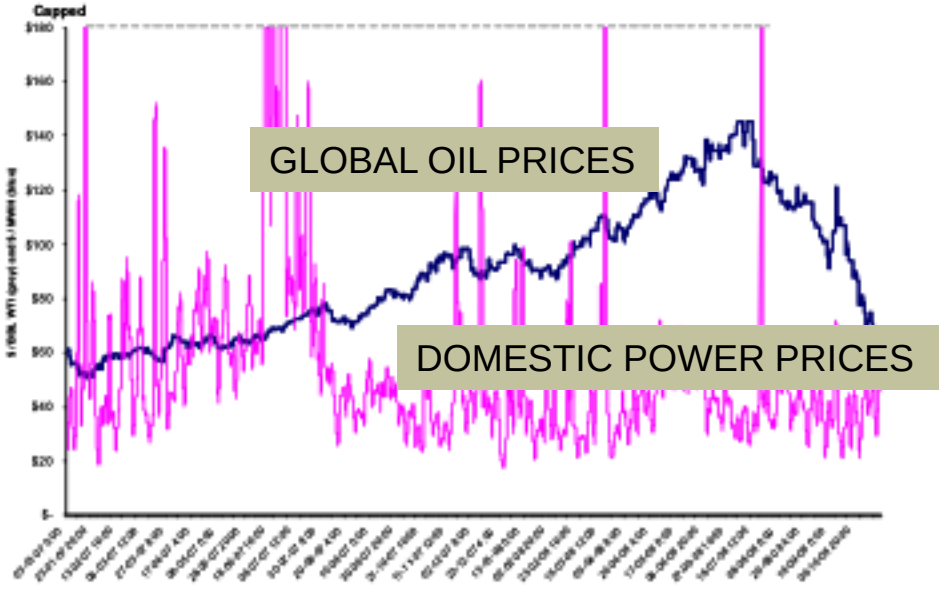
Source: IEA World Energy Outlook 2010

The reality is that even a nuclear renaissance was not going to make much difference to the more fundamental fuel battle in Asia

The real Asian story concerns how to respond to fuel market globalisation

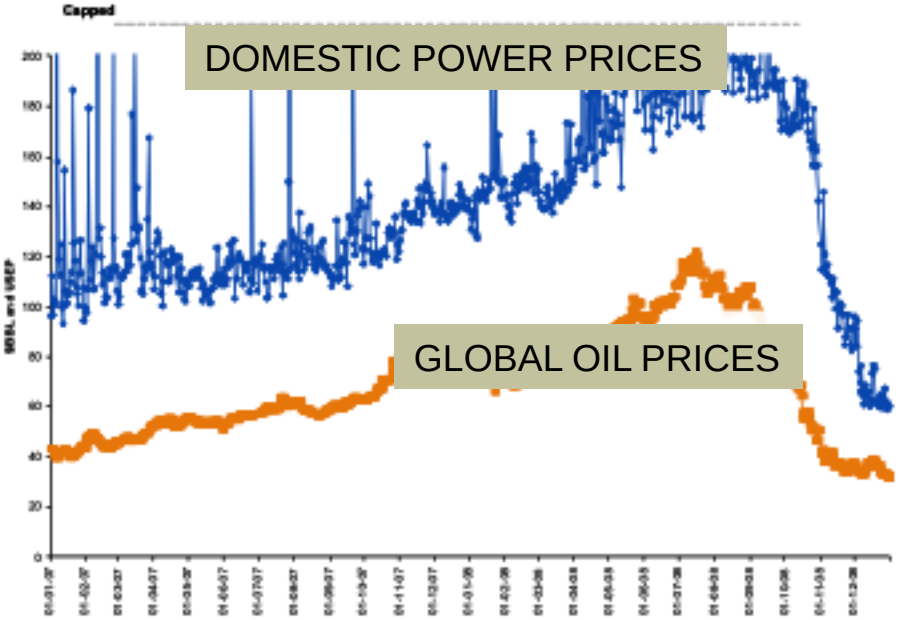
Yesterday:

Domestic markets



Tomorrow:

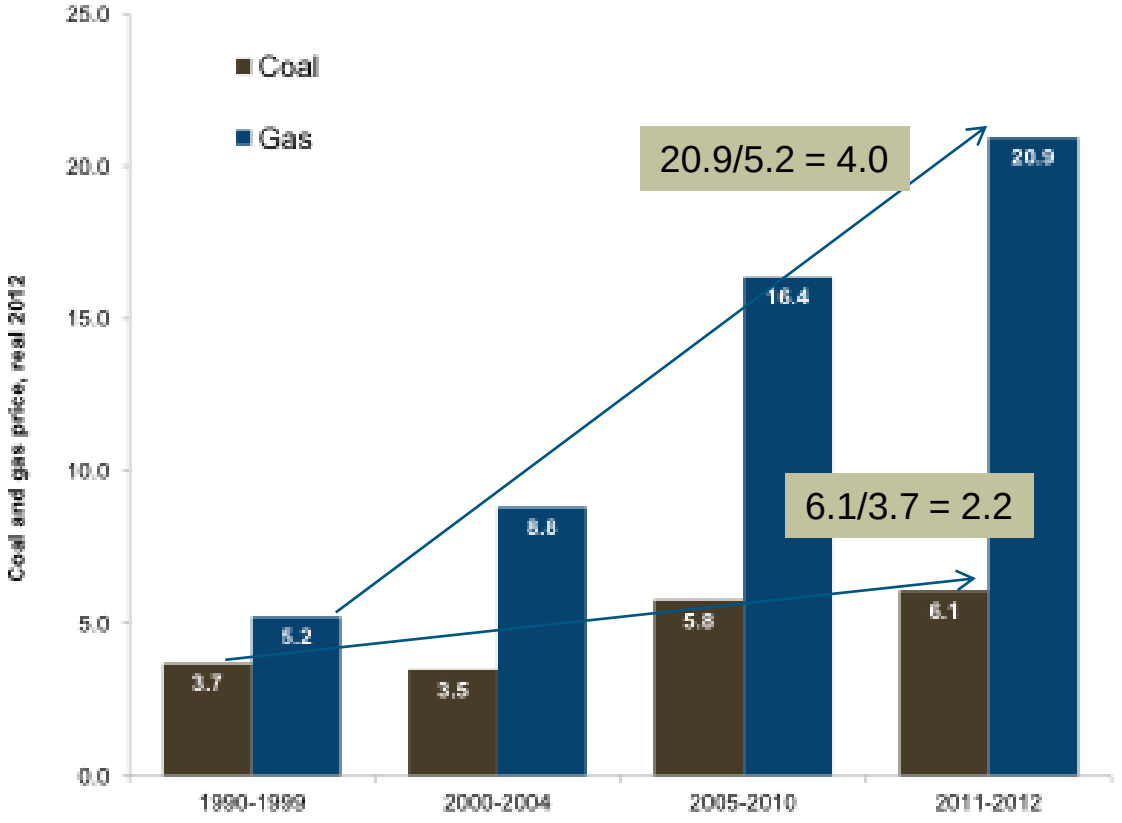
Global Markets



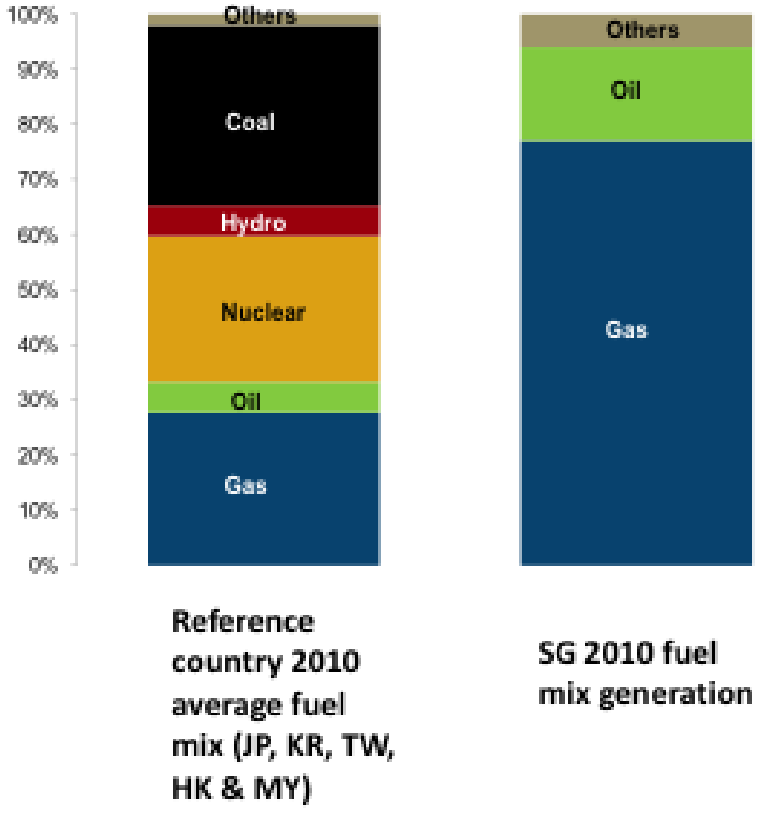
Source: TLG Analysis

King Canute could not command the tides, and governments cannot control global fuel markets

Since the 1990s, the cost of natural gas has nearly doubled in Asia ….compared to coal



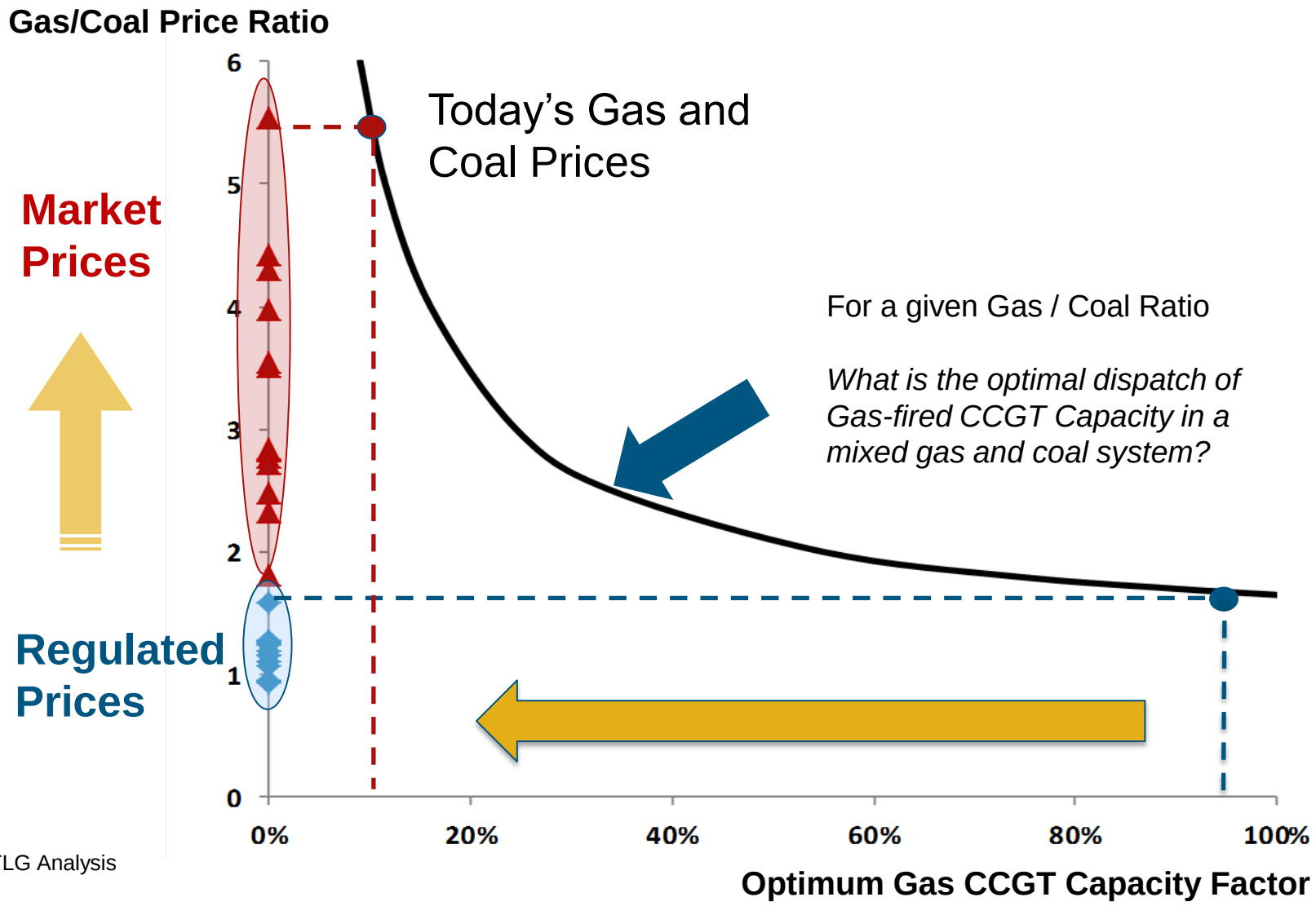
Impact depends on exposure



Source: TLG Analysis

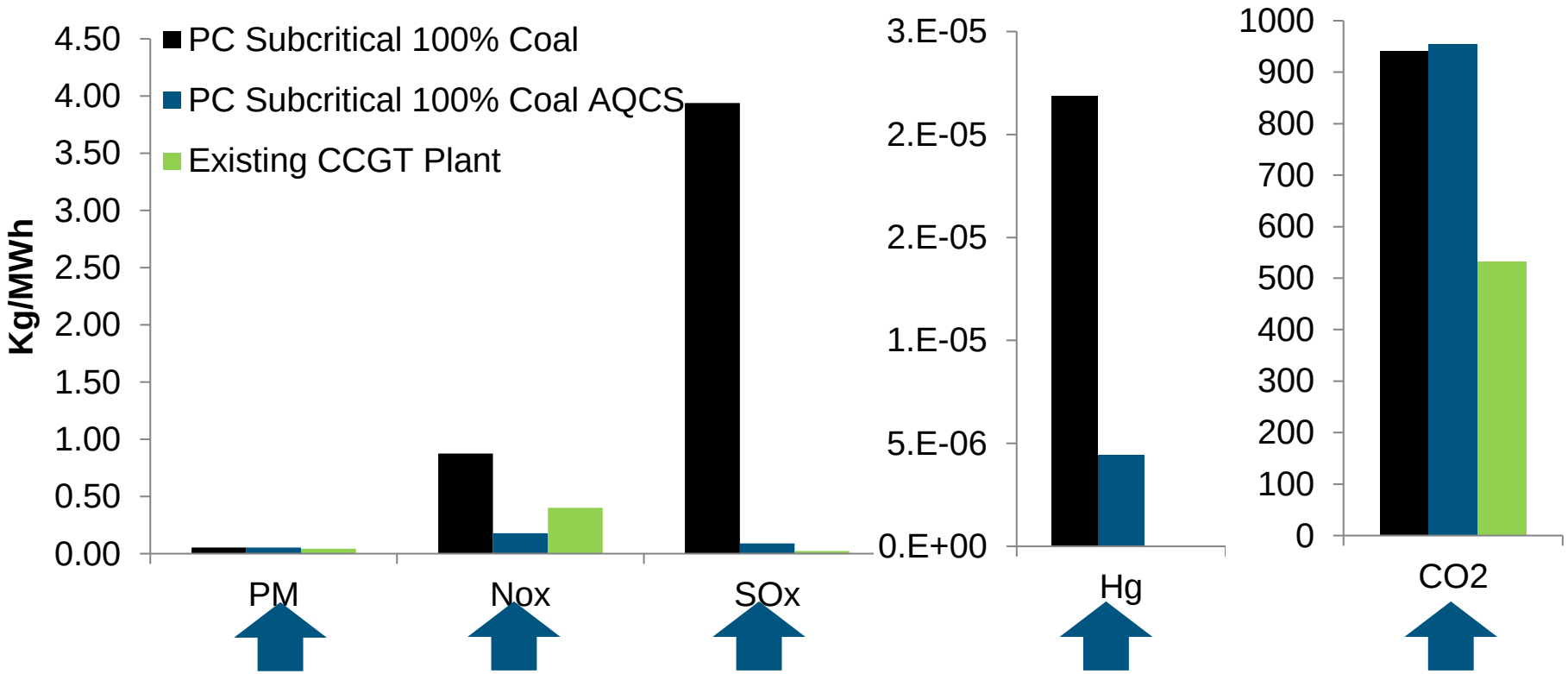
Gas has become so expensive that you have to ask: **What Am I Paying For?**

The economics favour coal as the baseload fuel – by a significant margin



Source: TLG Analysis

The effectiveness of the most advanced emission control technologies for coal is probably poorly understood



Same or cleaner than many existing gas plant in Asia

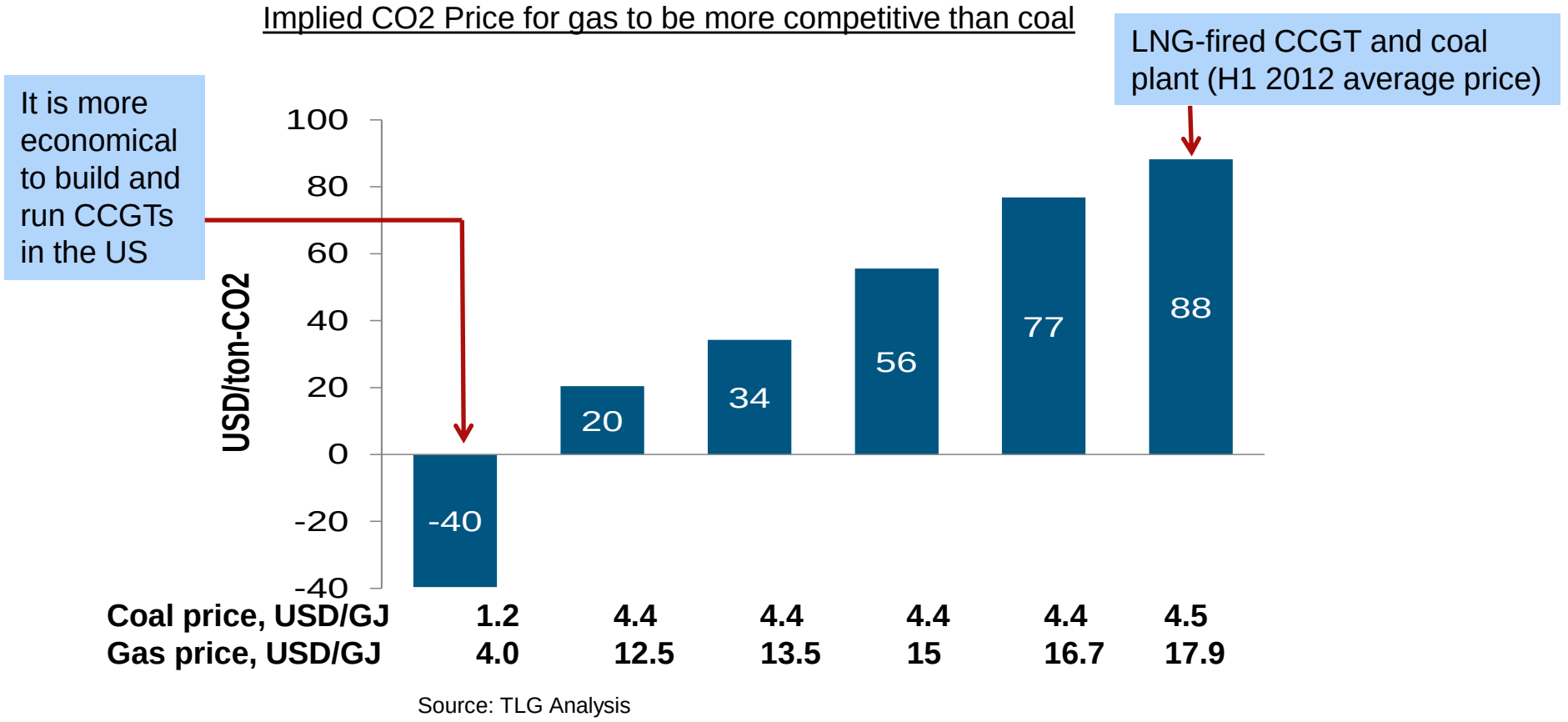
Disputed impact at controlled levels

The challenge

Source: Burns & McDonnell

The optimal mix of gas and coal depends on emissions externality values as well as relative fuel prices

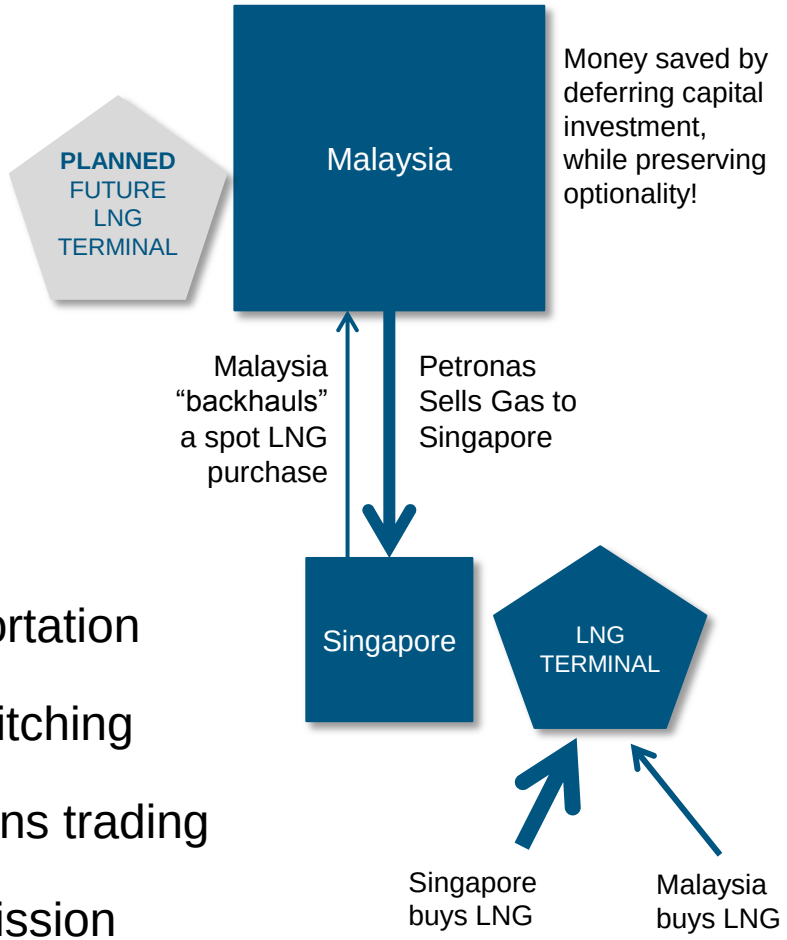
Using LNG in Asia (rather than coal) means being willing to pay a lot for environmental benefits – particularly carbon reduction



Source: TLG Analysis

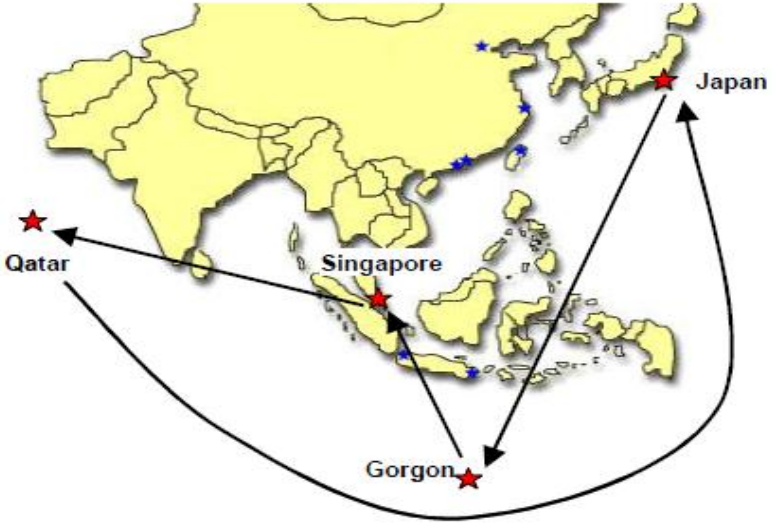
Gas is sexy, but is it 88 dollars sexy?

The path to the future is all about markets, trading and flexibility



- Transportation
- Fuel switching
- Emissions trading
- Transmission

The example of LNG Backhaul



Source: EMA Consultation Report

Benefits of Asia LNG Trading

Swaps for Demand-Supply Adjustments

- Cost of procurement could be minimized by diverting LNG cargos to other Asian countries such as Japan, Korea and Taiwan

Transportation Cost reduction from LNG Backhaul

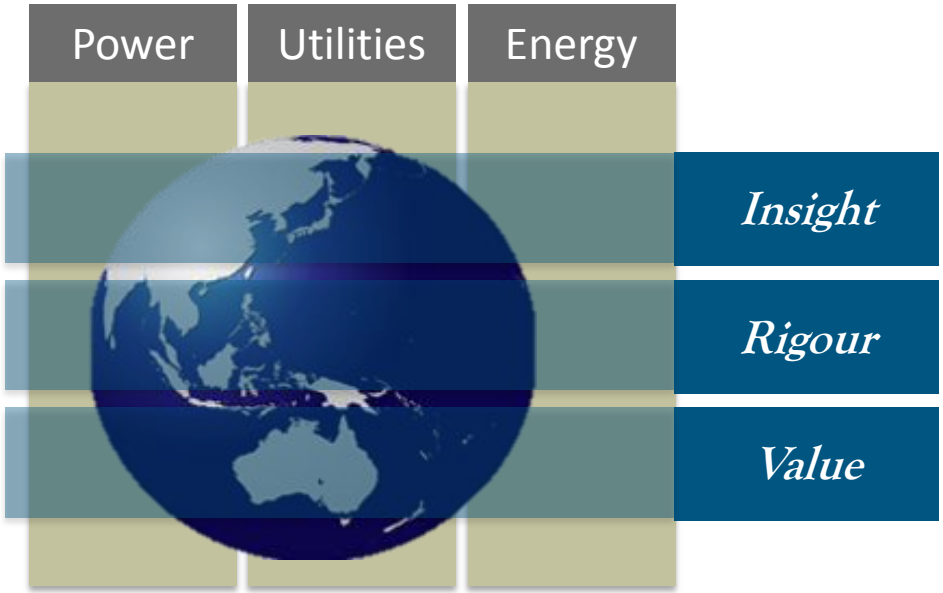
- Significant transportation cost saving opportunities exist that instead of heading directly back to Qatar, LNG vessel unloading at a Japanese terminal could load at Gorgon in Australia and deliver in Singapore and then back to Qatar
- Japan and Singapore could share the cost savings

Wrap up

- Fukushima has probably slowed nuclear power in Asia, but nuclear power was never the big issue (at least not this decade)
- The big issue is globalising fuel markets: Gas versus Coal
- The higher cost of gas in Asia should be forcing a complete rethink (or a first think) about environmental policy and cost-effectiveness
- The increasing complexity of fuel and environmental decisions should lead to greater awareness of the value of flexible and trading-based mechanisms
  - Interconnection
  - Fuel switching
  - Emissions
- The worst outcome would be to set specific fuel mix targets or set rigid environmental constraints without regard to cost or benefit

The path to the future is all about markets, trading and flexibility

Thank You



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Because the world needs more energy and fewer stupid decisions