

COAL

Medium-Term Market Report 2013

CSIS

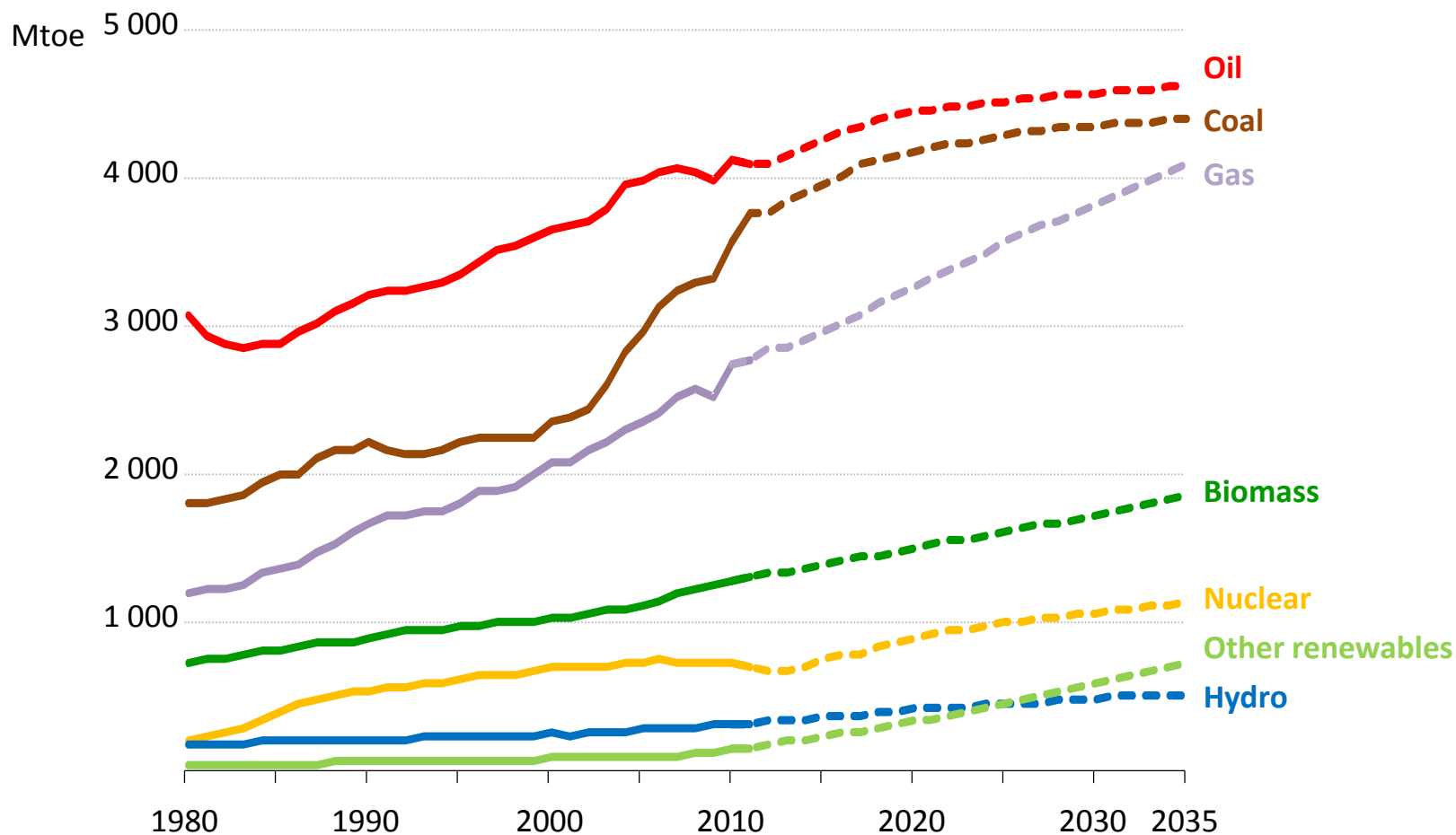
29 January 2014, Washington DC

*Keisuke Sadamori,
Director, Energy Markets & Security, IEA*

Market Trends and Projections to 2018

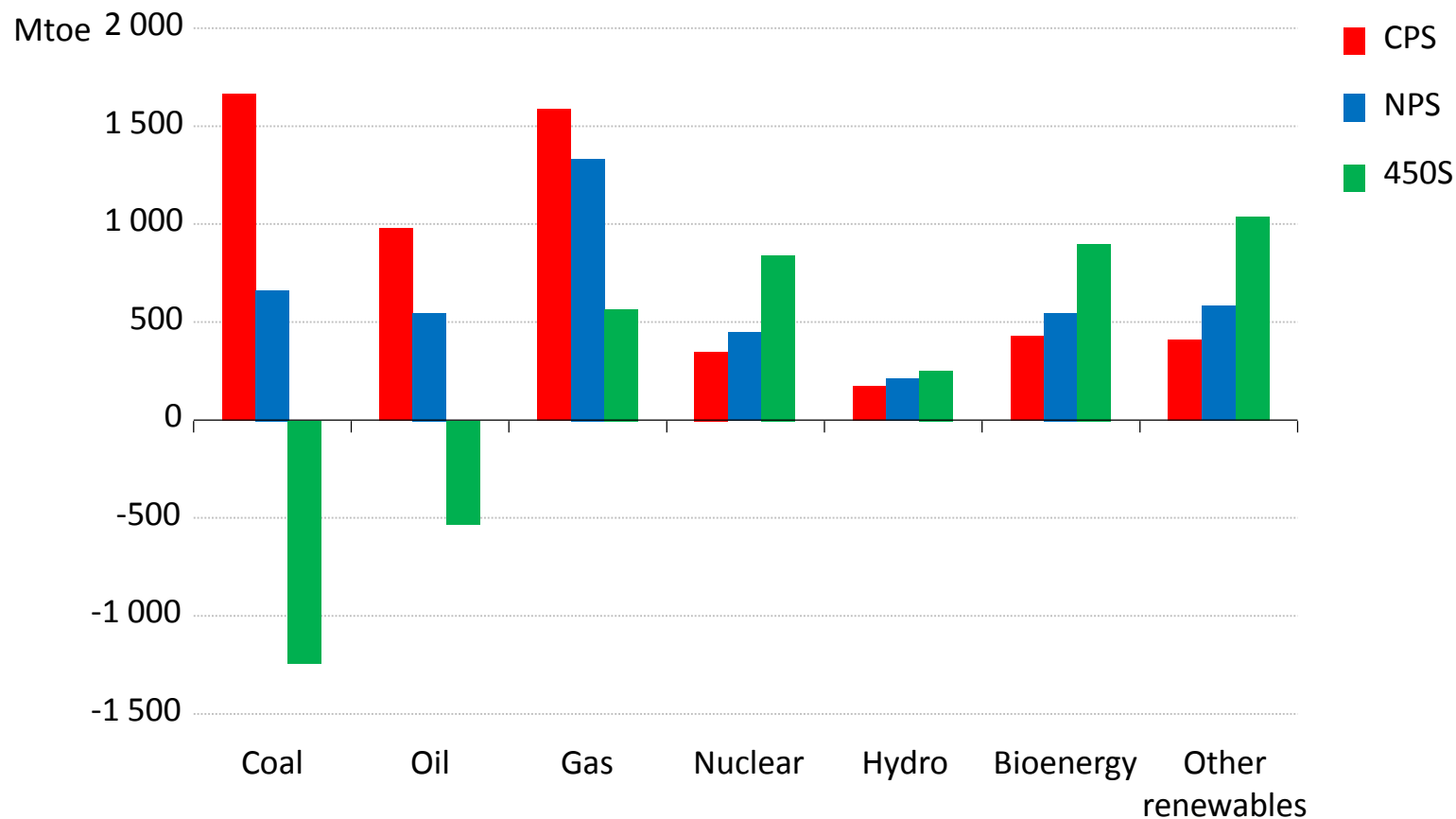
World energy demand by fuel

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Change in world energy demand by fuel & scenario, 2011-2035

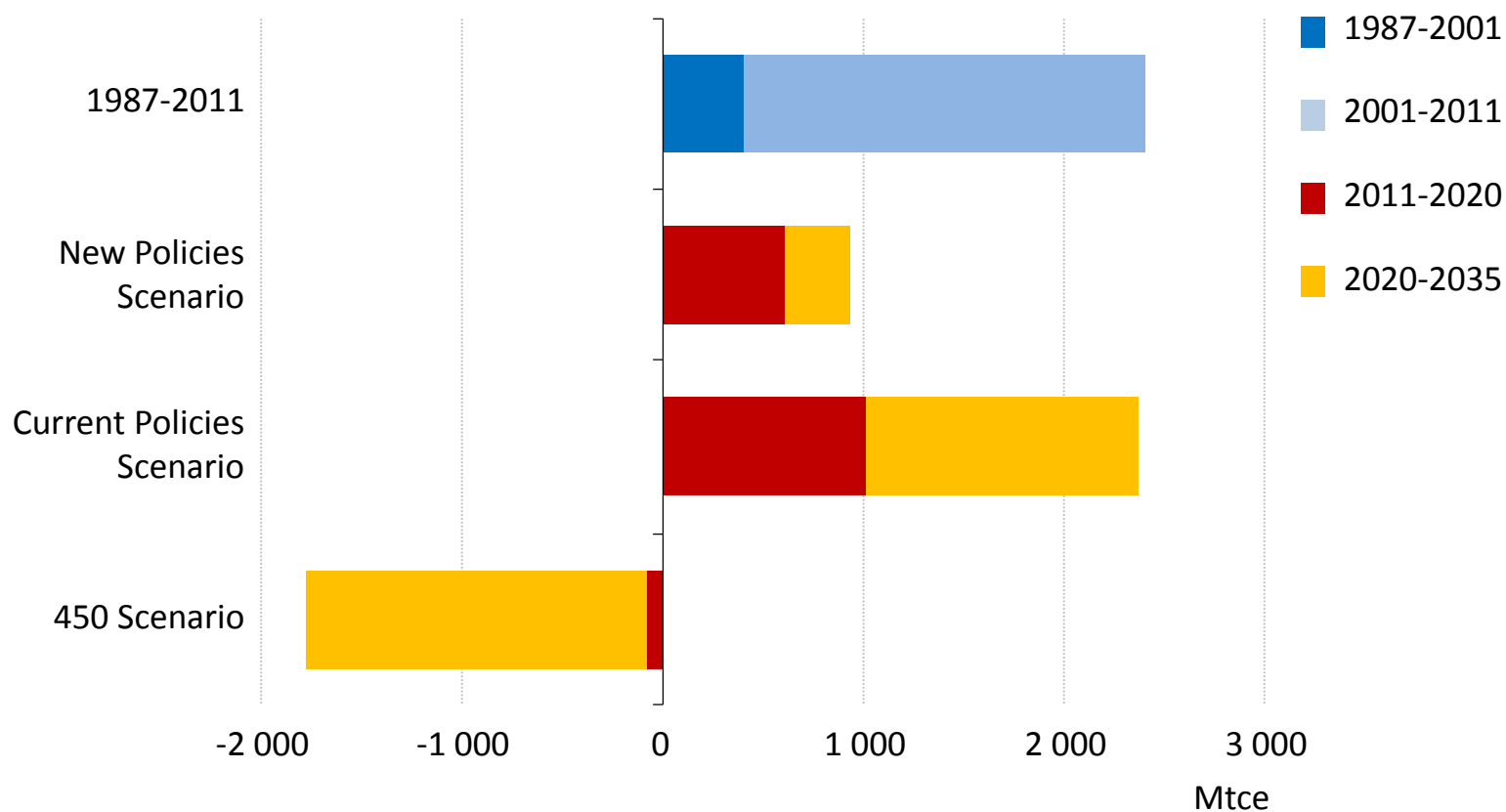
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Coal use grows further albeit at a slower pace than in the past

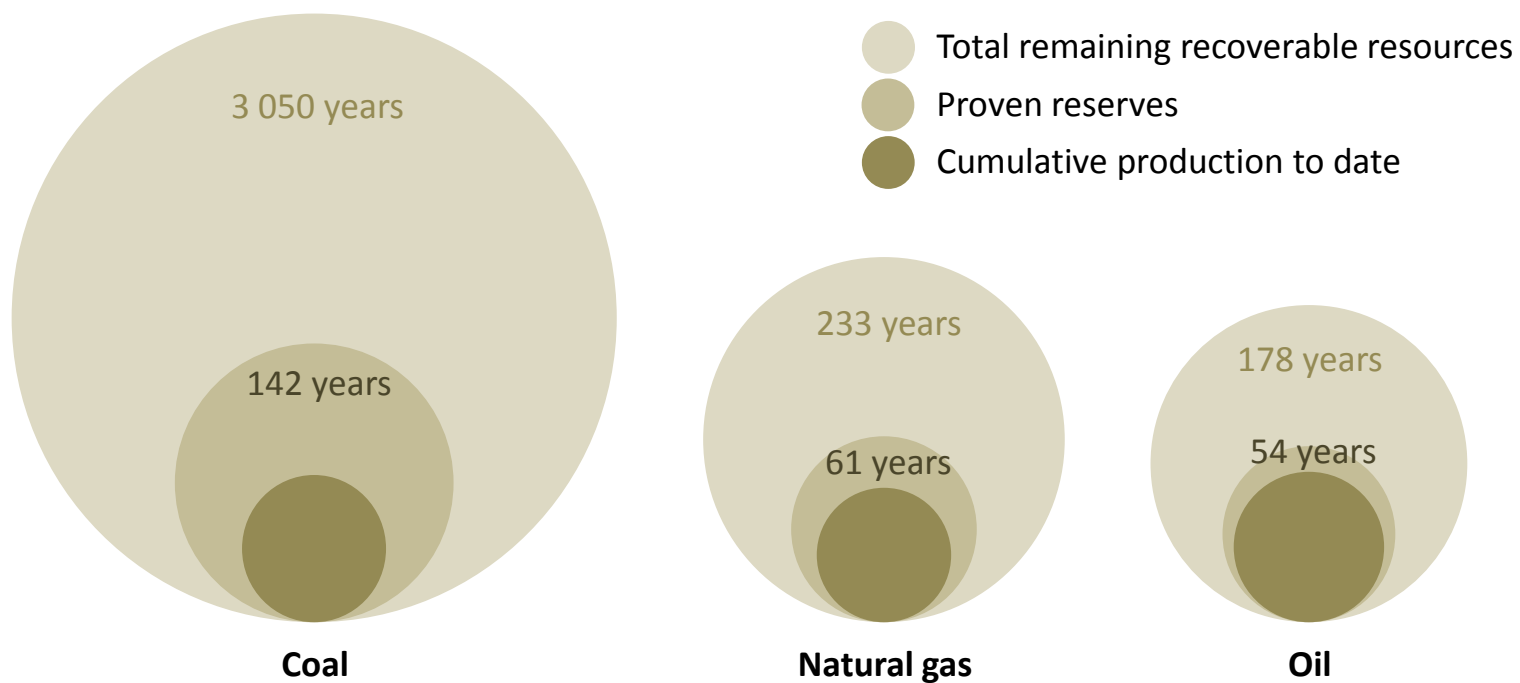
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Incremental world coal demand, historical & by scenario



Fossil energy resources by type

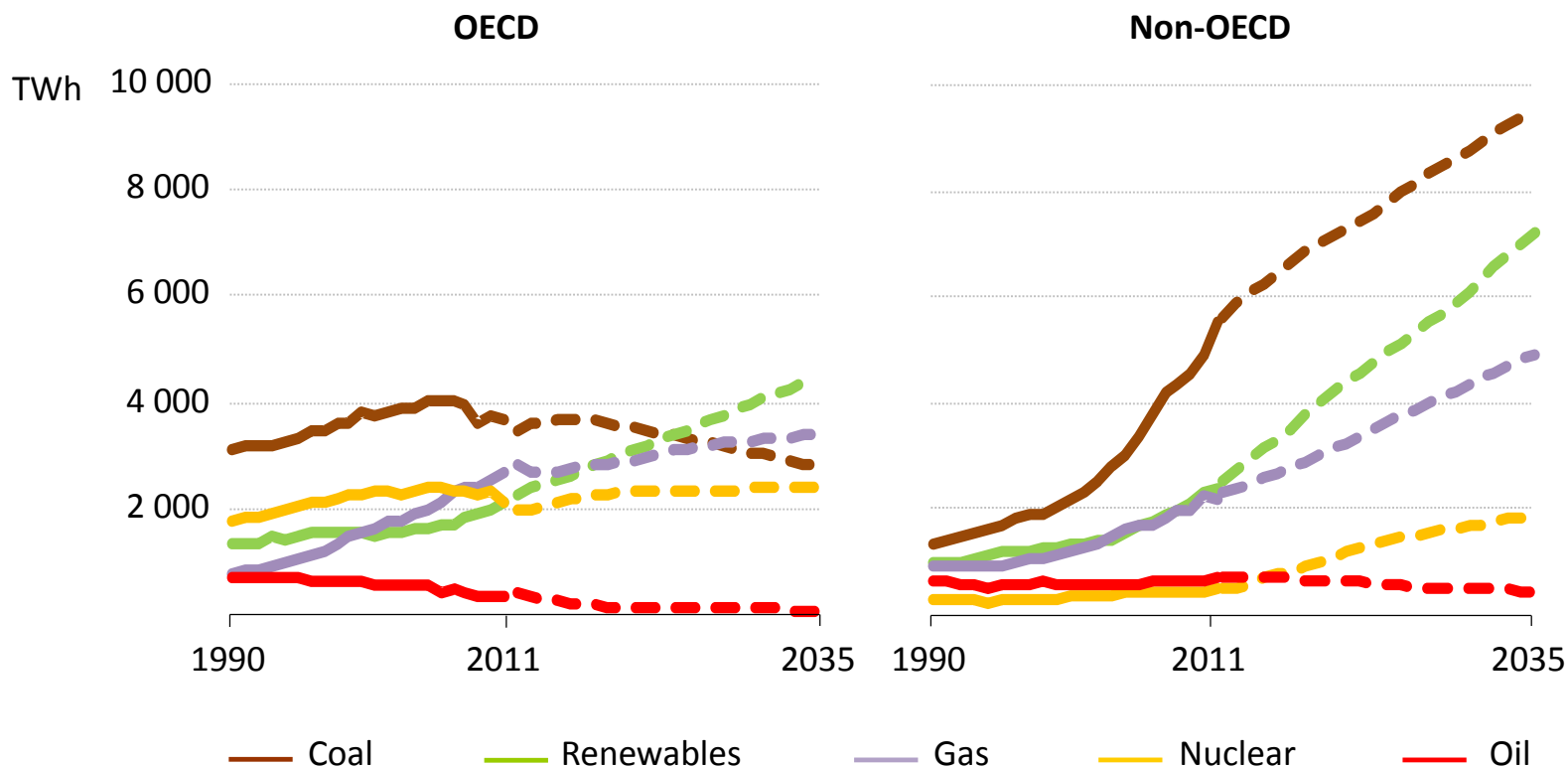
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Electricity generation in non-OECD countries has only begun to rise

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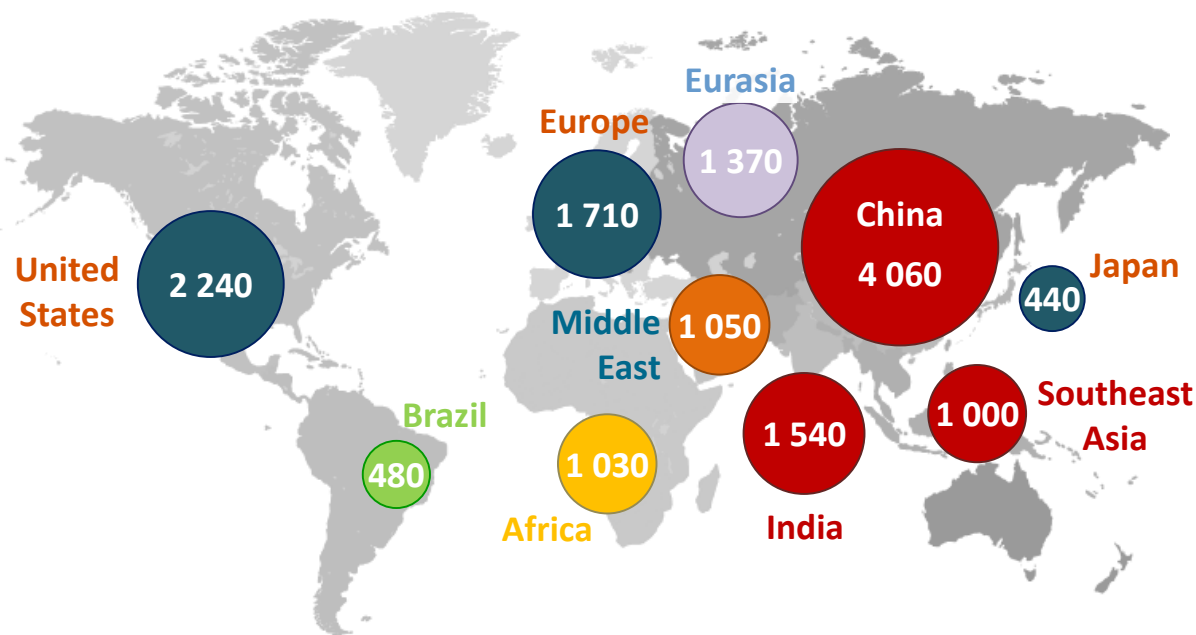
Electricity generation by source



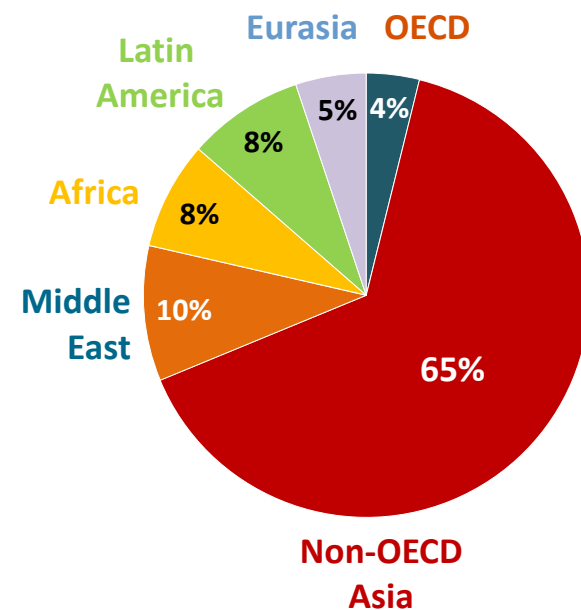
The engine of energy demand growth moves to South Asia

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Primary energy demand, 2035 (Mtoe)



Share of global growth
2012-2035

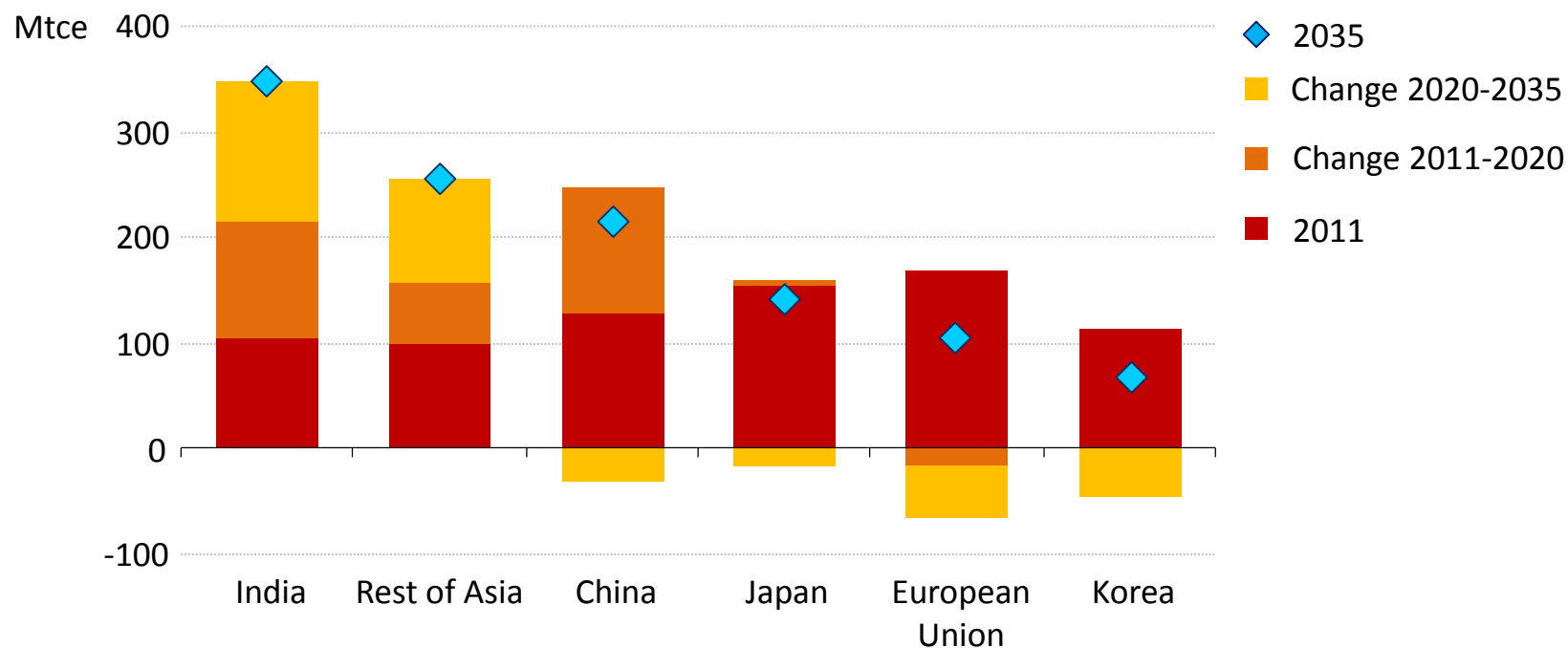


China is the main driver of increasing energy demand in the current decade, but India takes over in the 2020s as the principal source of growth

The centre of coal trade is shifting to developing Asia

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Major net importers of coal

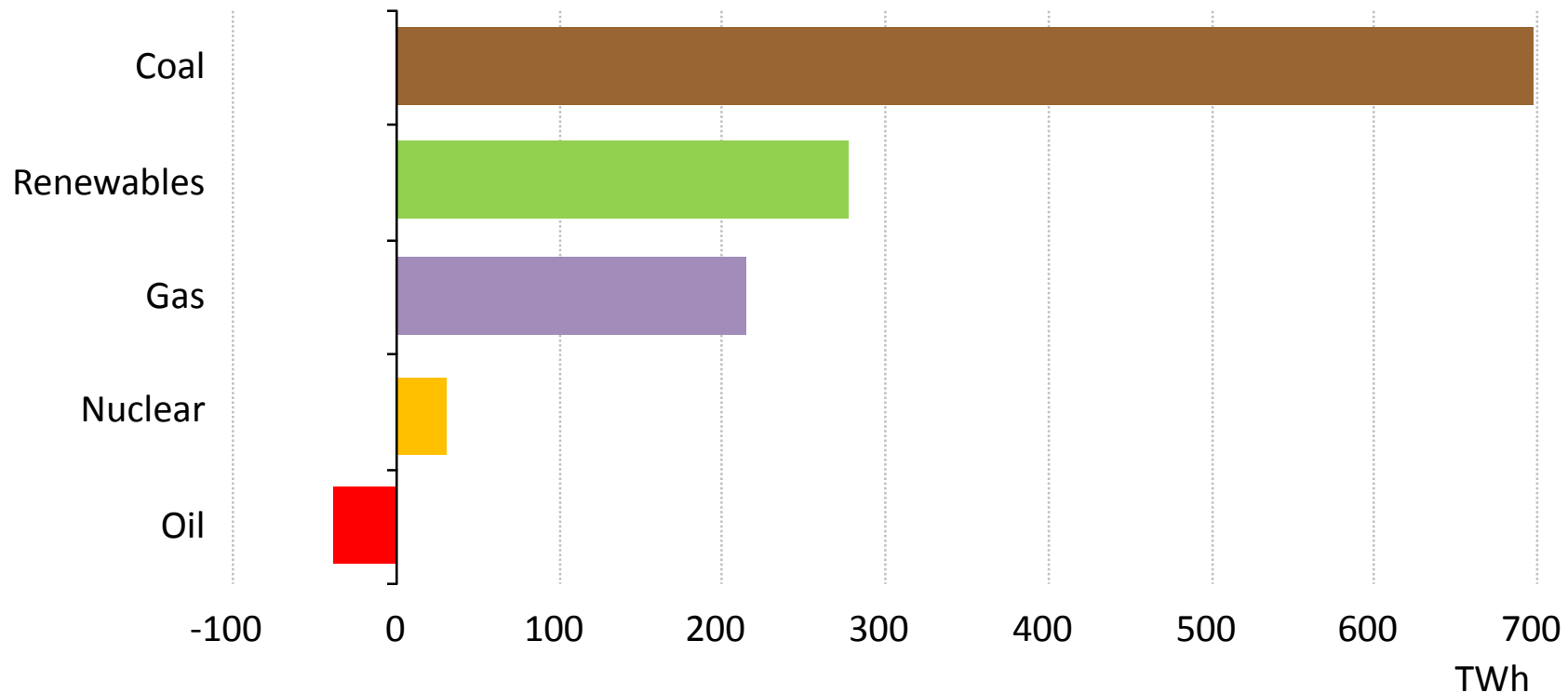


The role of key OECD coal importers declines further, while Asian importers gain in importance, with India becoming the largest net importer early in the next decade

The power sector is fundamental to the energy outlook of Southeast Asia

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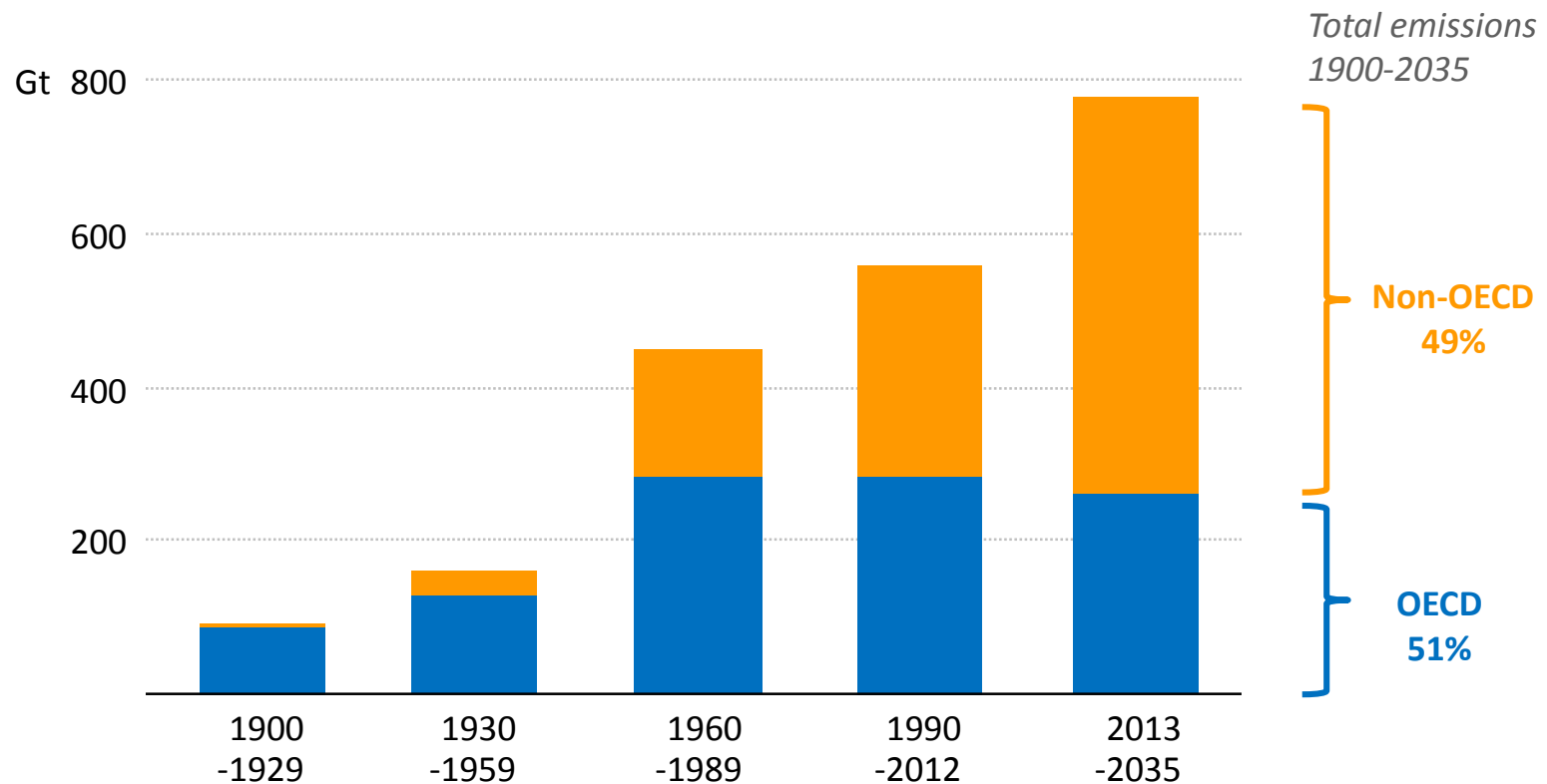
ASEAN incremental electricity generation by fuel, 2011-2035



Emissions off track in the run-up to the 2015 climate summit in France

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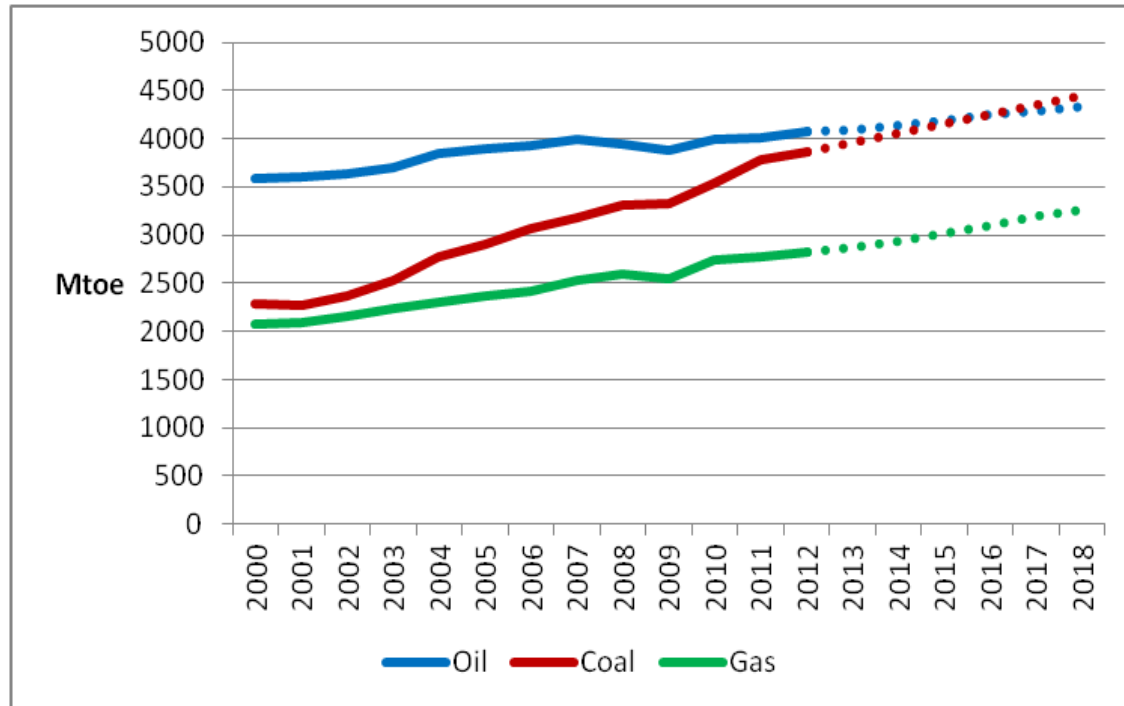
Cumulative energy-related CO₂ emissions



Non-OECD countries account for a rising share of emissions, although 2035 per capita levels are only half of OECD

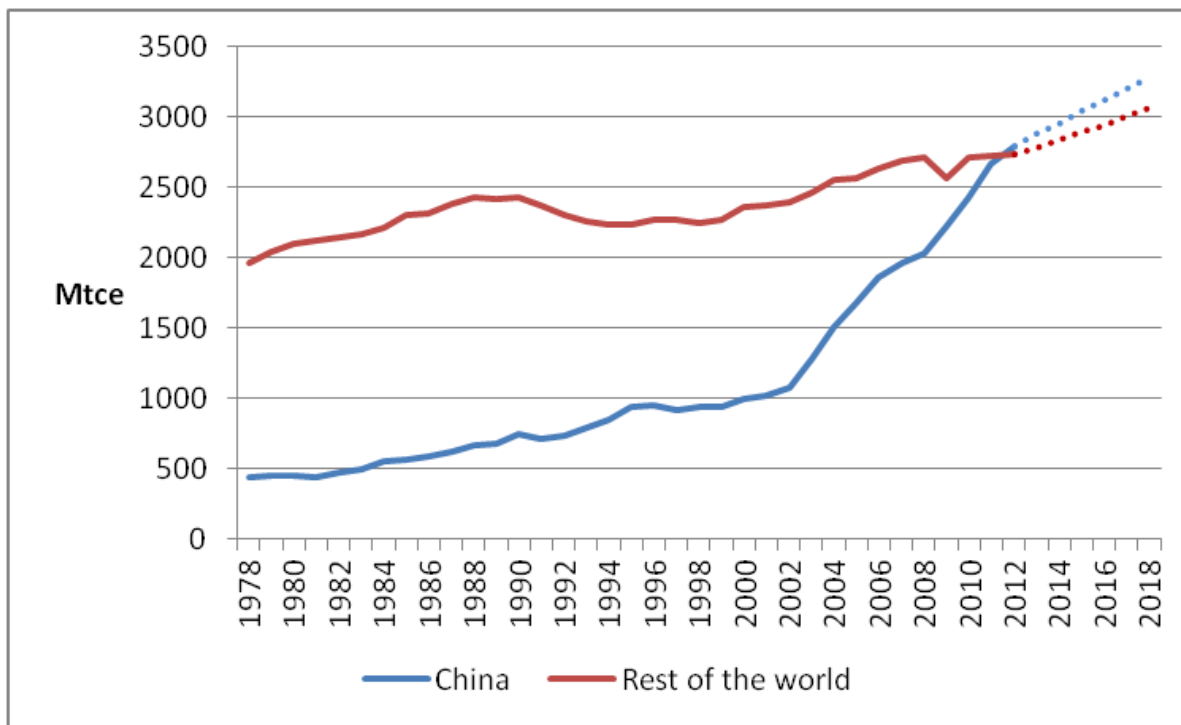
Coal demand knows only one direction: up

PRIMARY ENERGY FROM FOSSIL FUELS



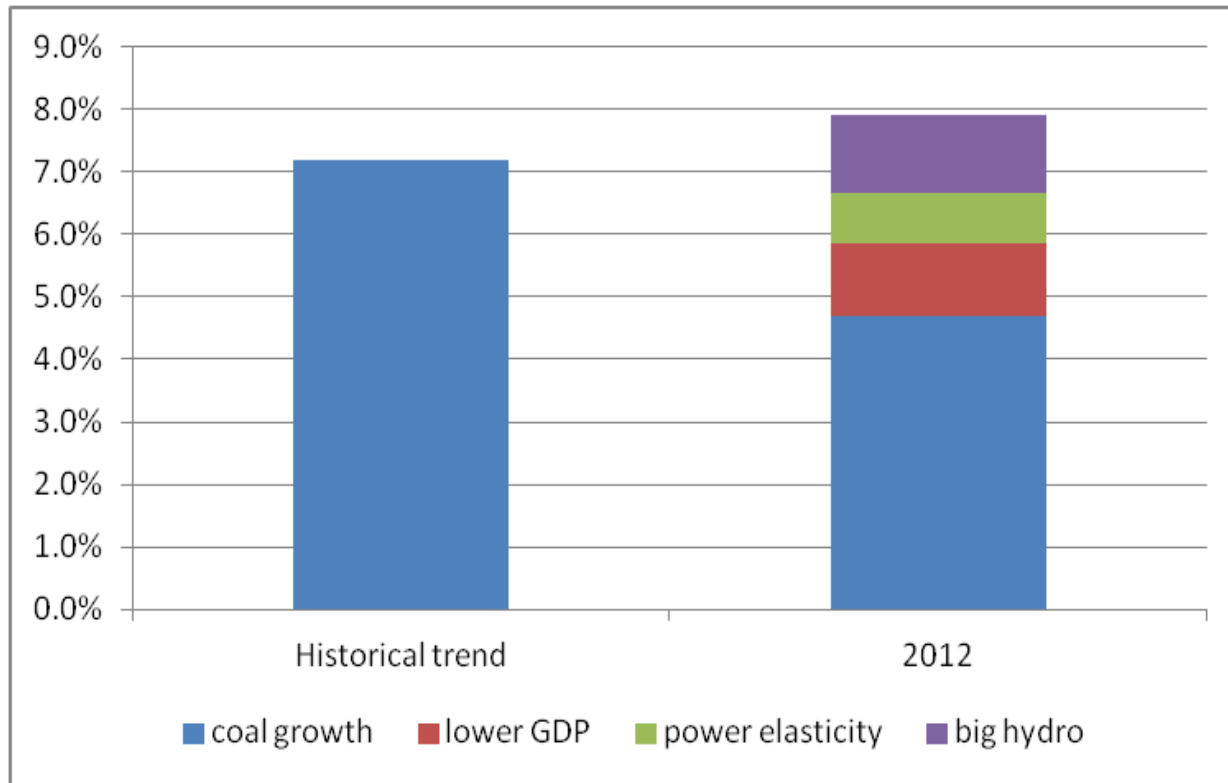
BAU: China leading the (coal) world

COAL DEMAND IN CHINA AND IN THE REST OF THE WORLD



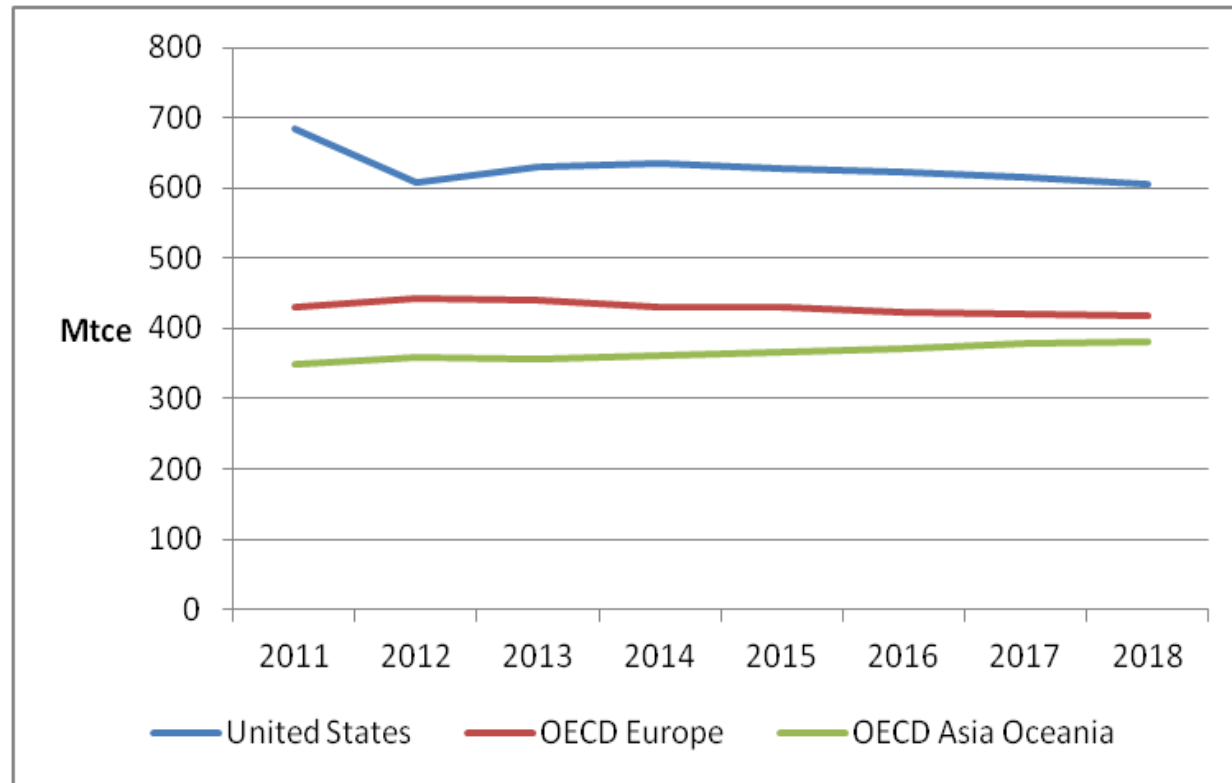
What happened in China in 2012?

COAL DEMAND GROWTH IN CHINA (y-o-y)



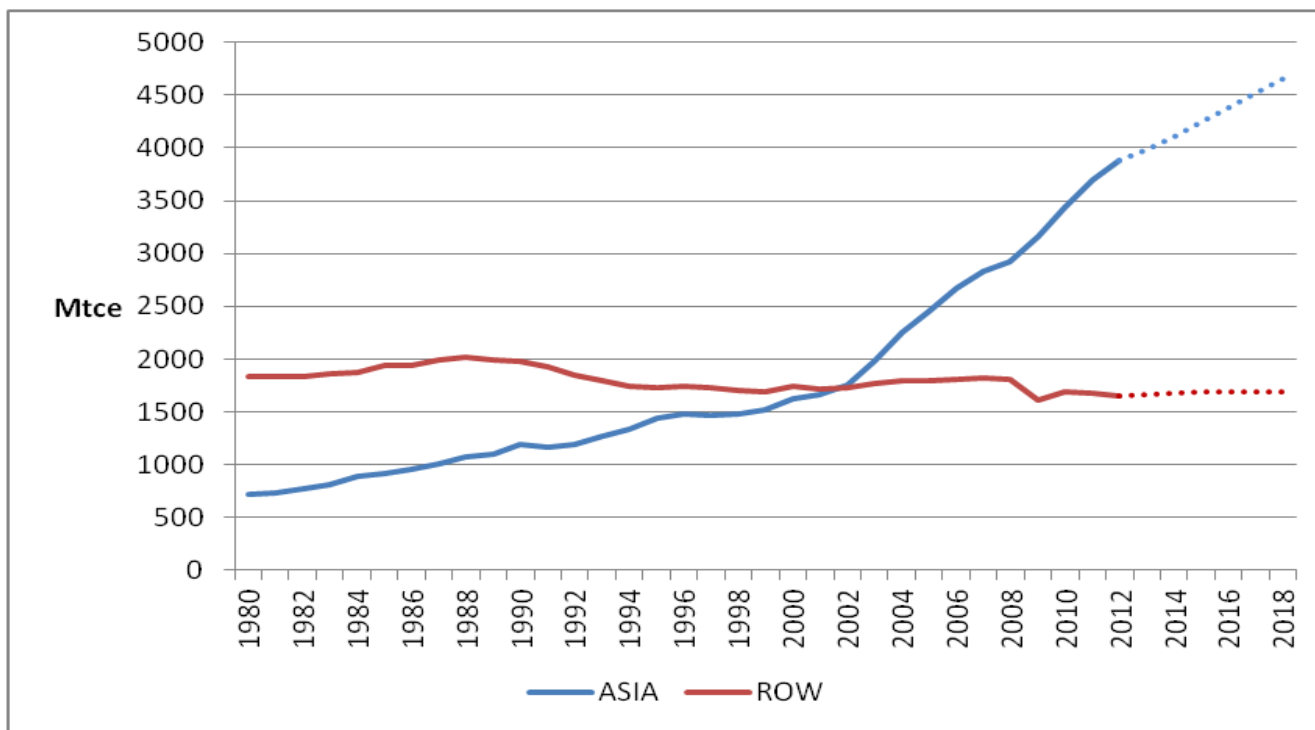
OECD countries are not reducing coal use

COAL DEMAND PROJECTIONS



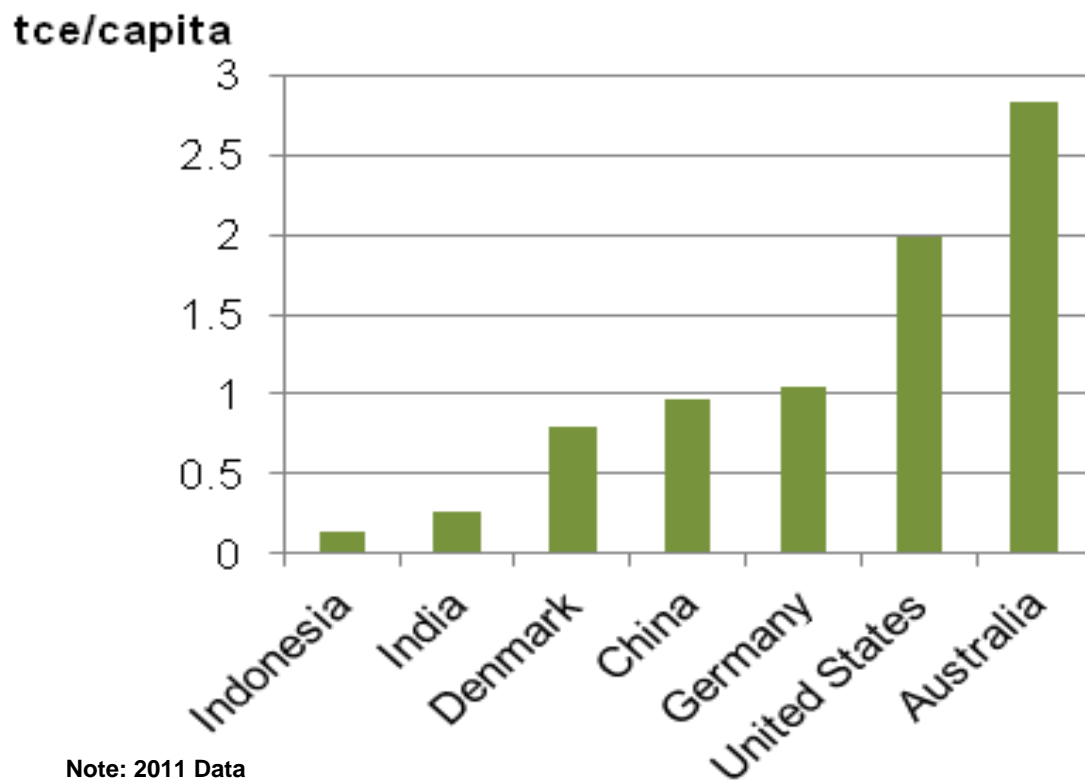
Growth led by Asia

COAL DEMAND TRENDS AND PROJECTIONS



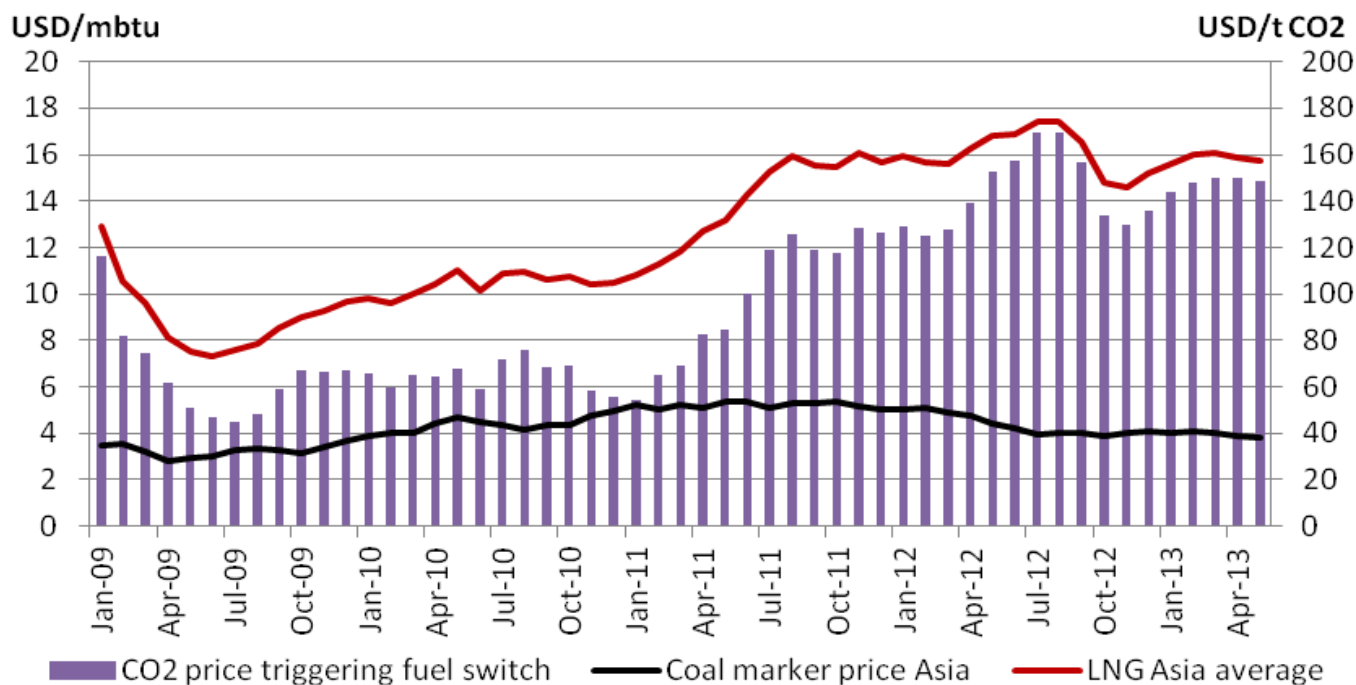
But who is more coal-dependent?

COAL USE IN POWER GENERATION

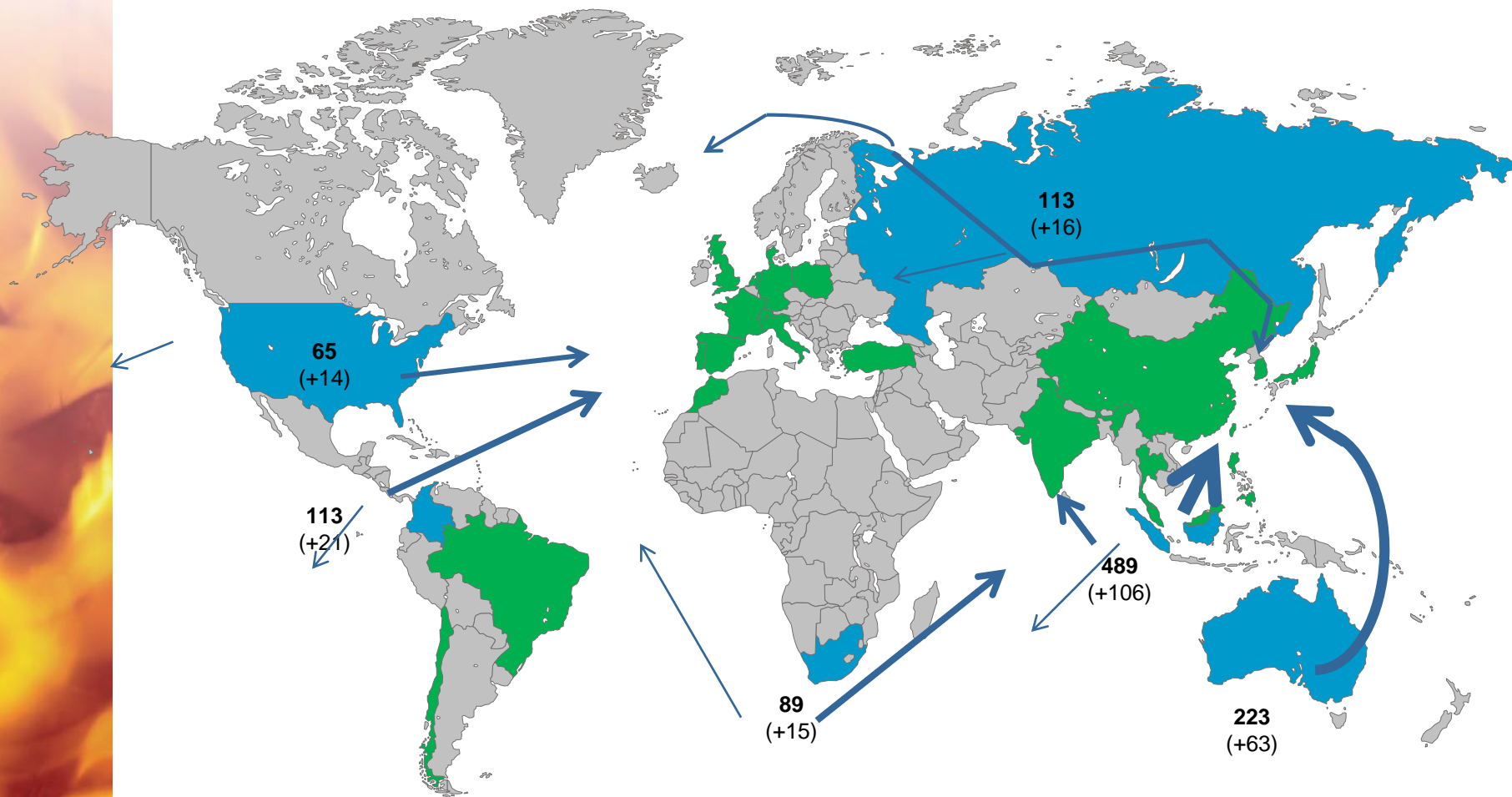


Displacing coal in Asia will not be that easy

COAL AND GAS PRICES. IMPLIED CO2 PRICE TO TRIGGER FUEL SWITCHING



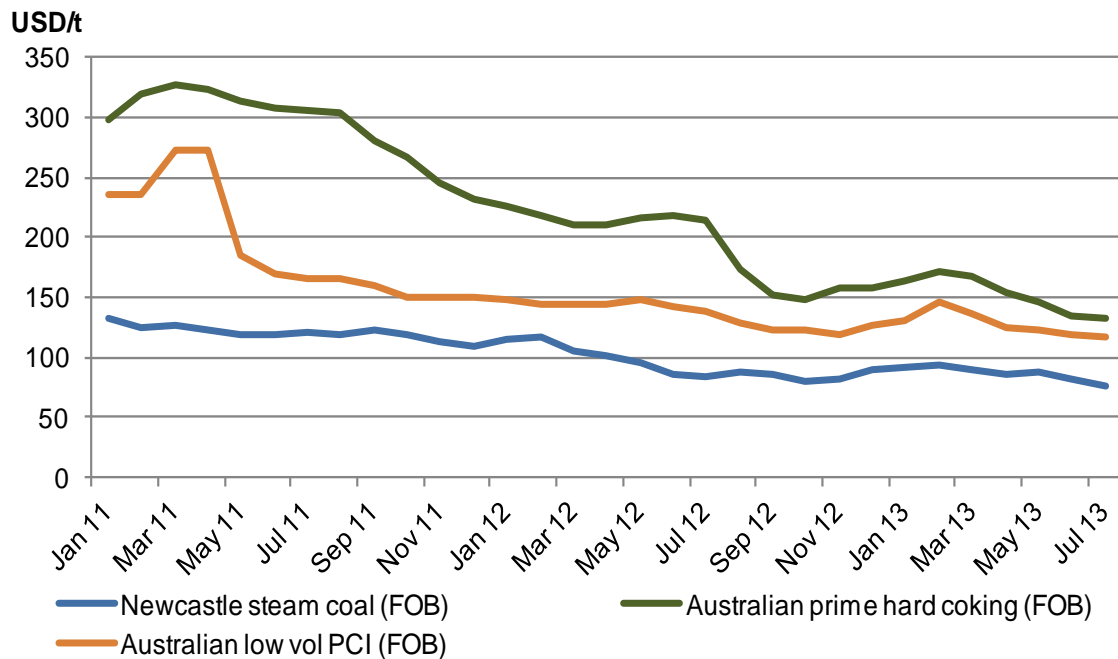
Coal trade: growing faster, moving East



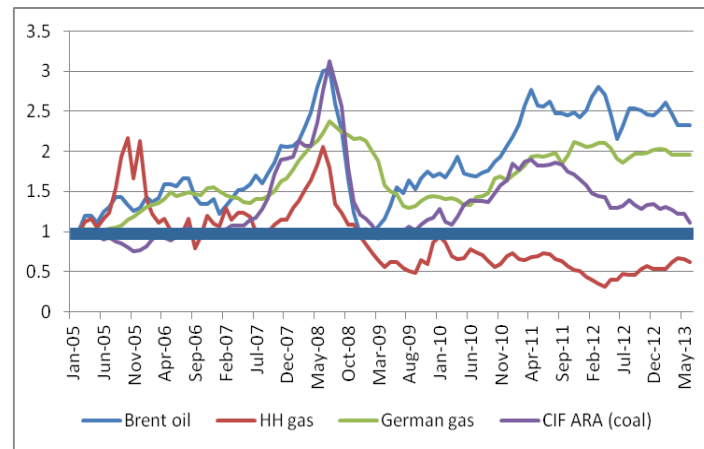
Global thermal
seaborne trade
1131 Mt (2018)
(+244 Mt 2012-18)

Prices going down

SPOT PRICE OF THERMAL, COKING AND PCI COAL (AUSTRALIA-FOB)

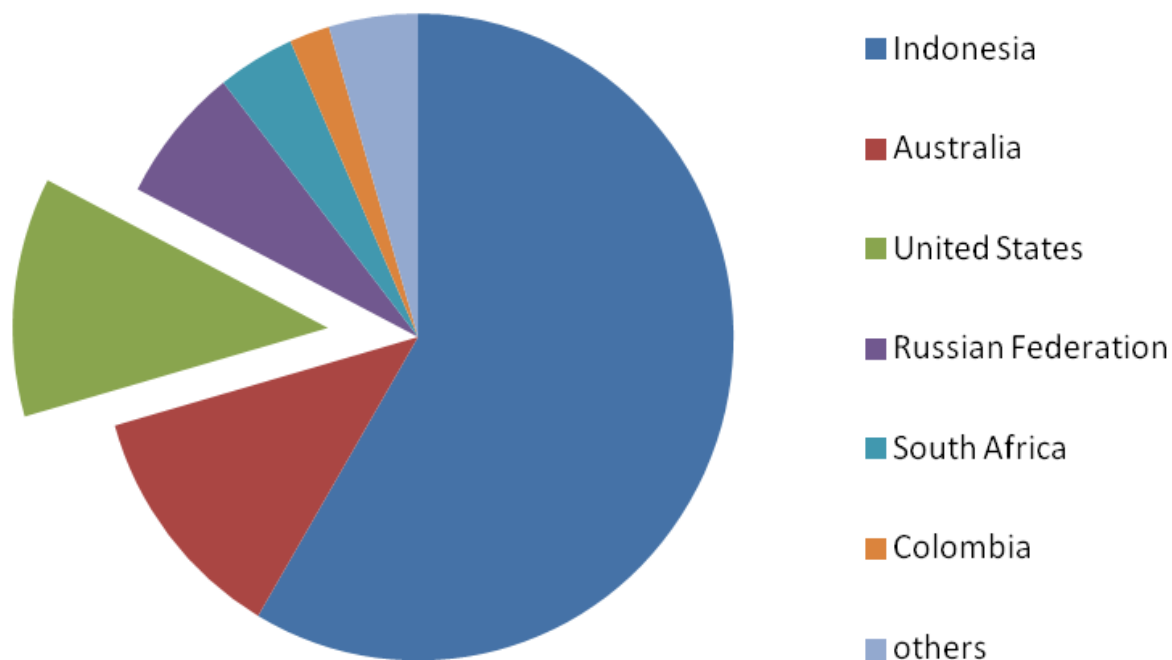


Evolution of fossil fuel prices

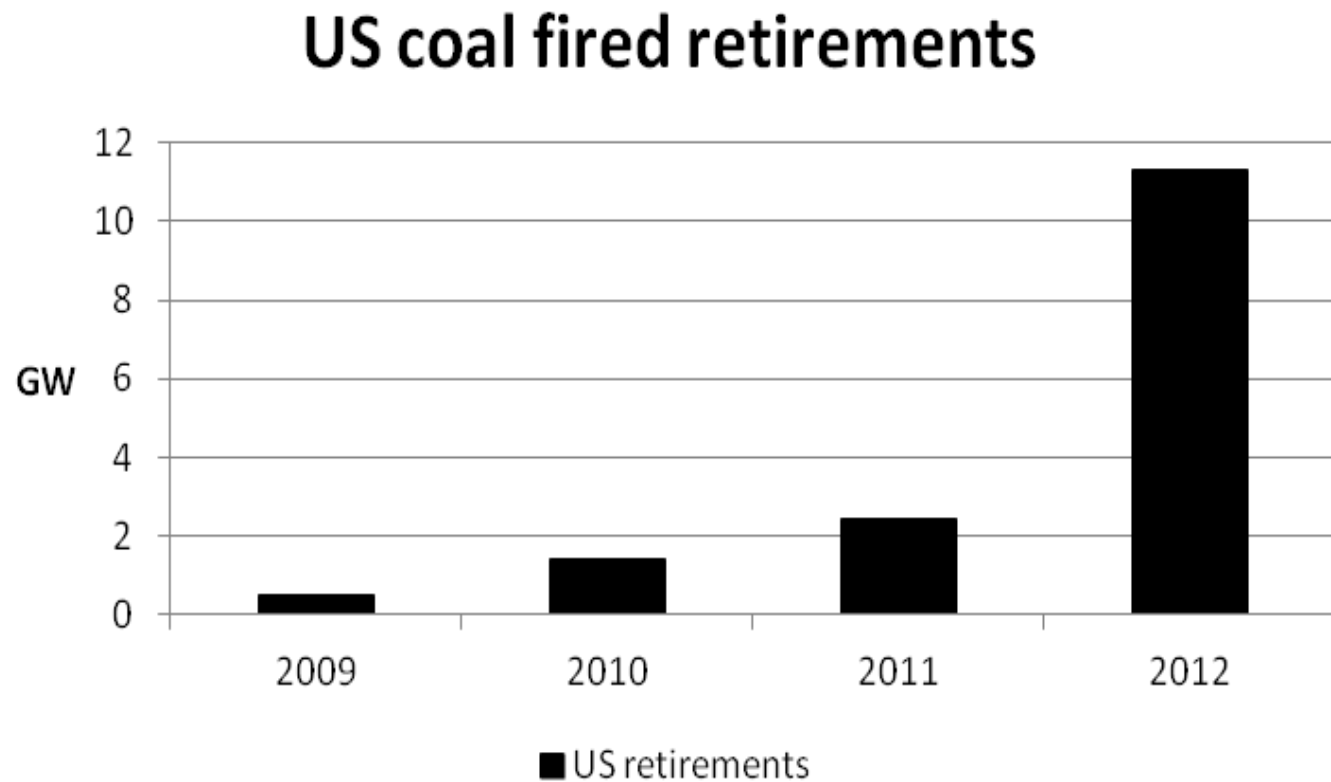


But low coal price is not just a US story

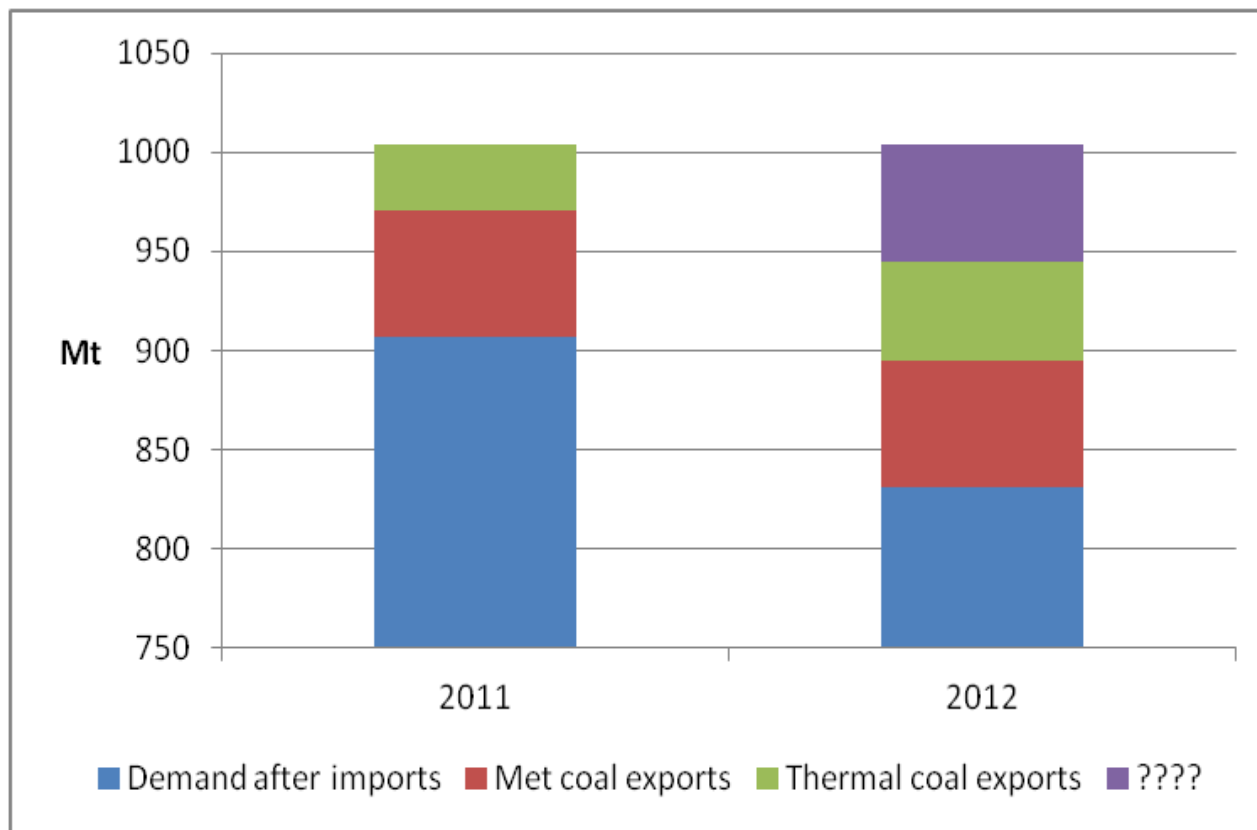
Incremental thermal coal exports 2012 vs. 2011



EPA regulations shortened coal fleet



Where did unburned US coal go?



This is the answer

The James River Coal company announced Tuesday it is **closing** several mines in eastern Kentucky and laying off 525 employees.

Argus Energy has notified West Virginia labor authorities that it will **shut** two underground coal mines, a preparation plant and the Wayne County River Terminal on December 27.

Major **Layoffs** at Oxbow Coal Mine

America West Resources entered **bankruptcy** in February 2013

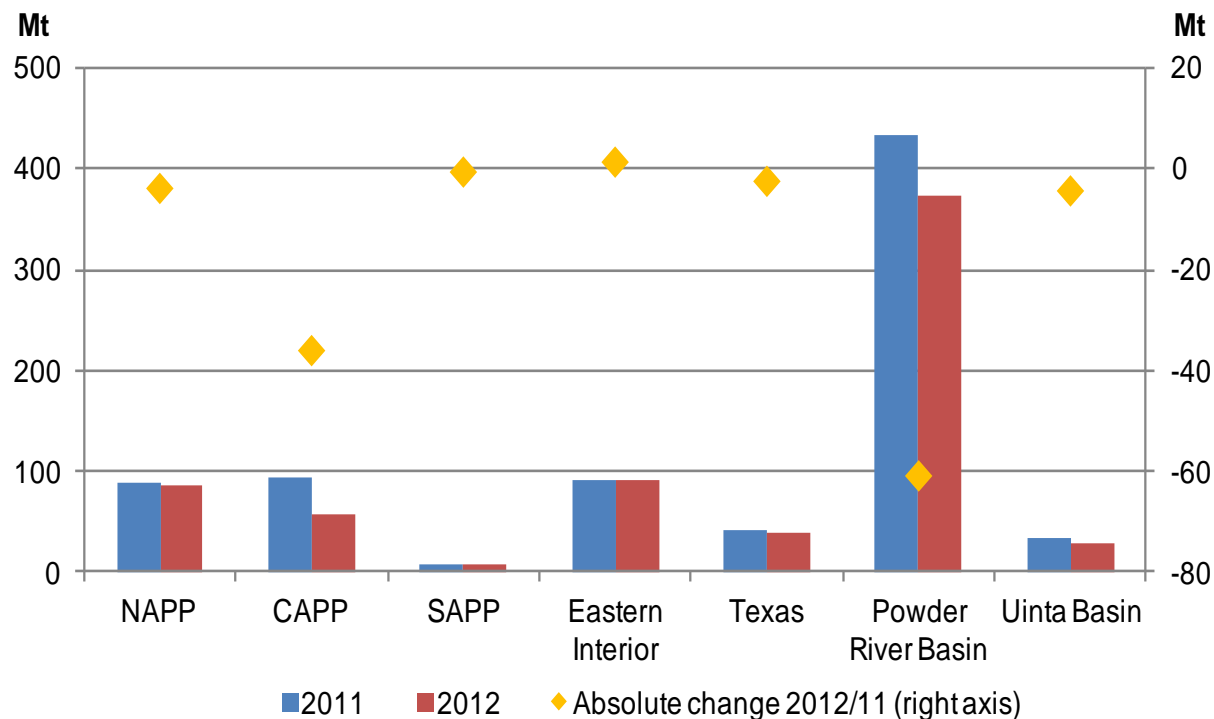
The vice president of Springfield Coal Company tells us nearly 190 Crown III miners have been **laid off** in Farmersville.

Patriot Coal entered **bankruptcy** protection in July 2012

More than 250 miners and employees have been let go. The **lay-offs** took place at the Guyan Surface Mine and the Fanco Prep Plant in Yolyn in Logan County.

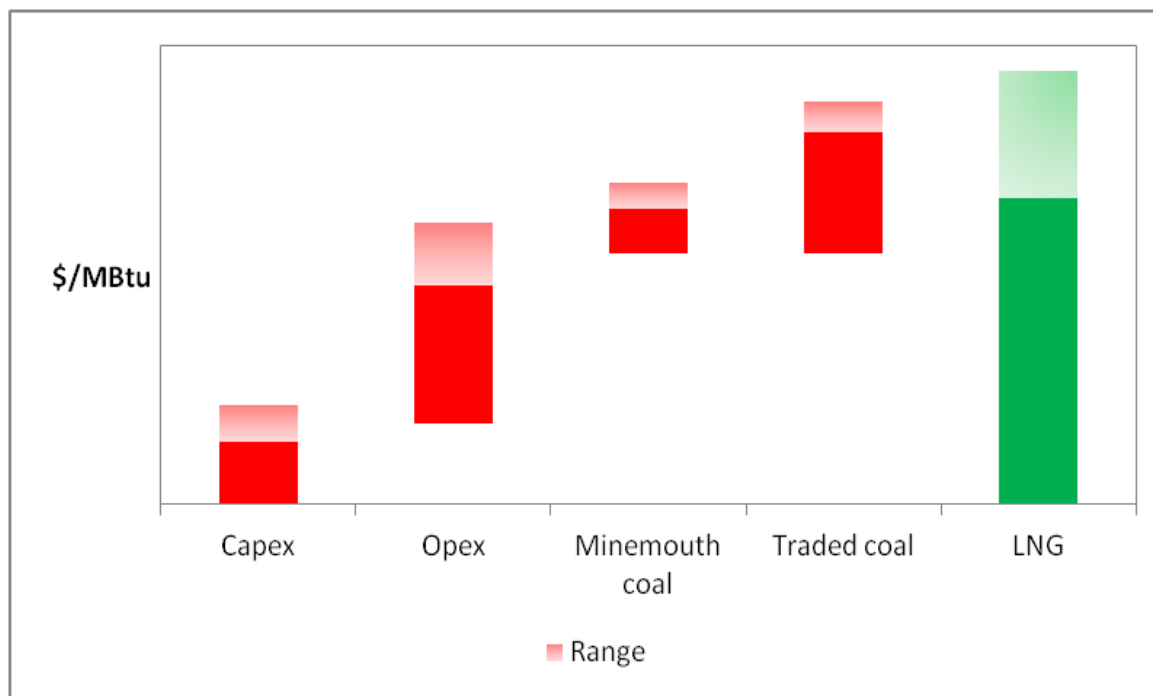
Central Appalachian and PRB felt the bit

COAL SHIPPED IN US BY BASINS



Economics of coal gasification do make sense

AN ESTIMATE OF COAL-BASED SNG



Wrapping up

- **Coal demand will grow at average 2.3% per year to reach almost 9 billion tonnes in 2018**
- **Despite some policy changes, China will lead the way, absorbing roughly 60 % of that growth**
- **OECD consumption remains flat**
- **Indonesia and Australia will lead export growth**
- **Coal conversion in China emerges as a driver of demand growth**

Thank you

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