



# The role of coal in the energy mix

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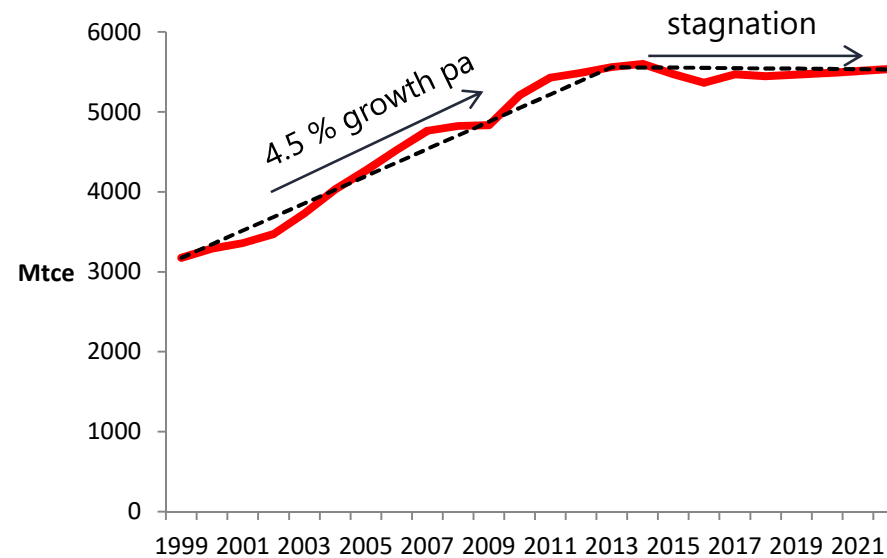
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Assocarboni National Congress - Rome - 22 March 2018



# Two different trends define global coal demand this century



Evolution of global coal demand (1999-2017)



Data from 1999 to 2016 are IEA statistics. From 2017 to 2022 are IEA forecast (Coal Report 2017)

**After a decade of outstanding growth, global coal demand has entered a decade of stagnation**

# Coal's shift to Asia continues



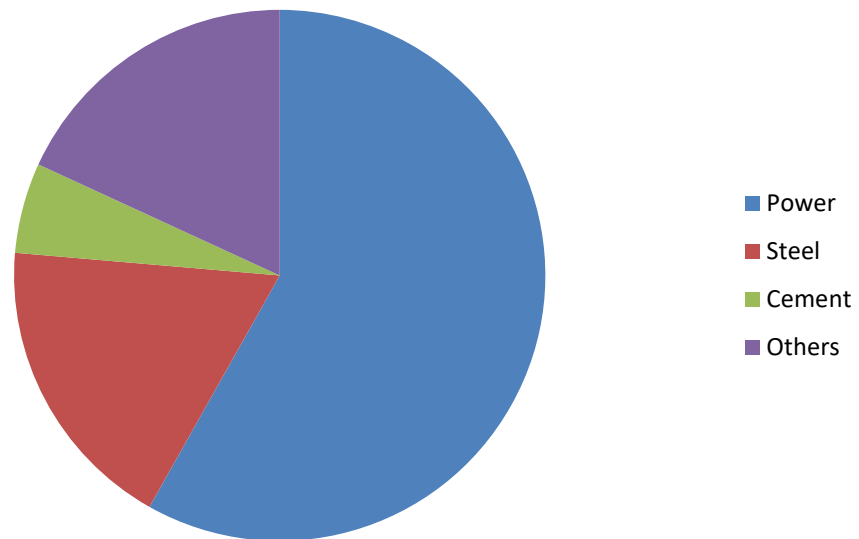
This map is without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries, and to the name of any territory, city or area.

**Asia, currently consuming 75% of global coal, will be the main area of growth in the coming years**

# Uses of coal globally (by sector)



Share of coal use globally (2015)



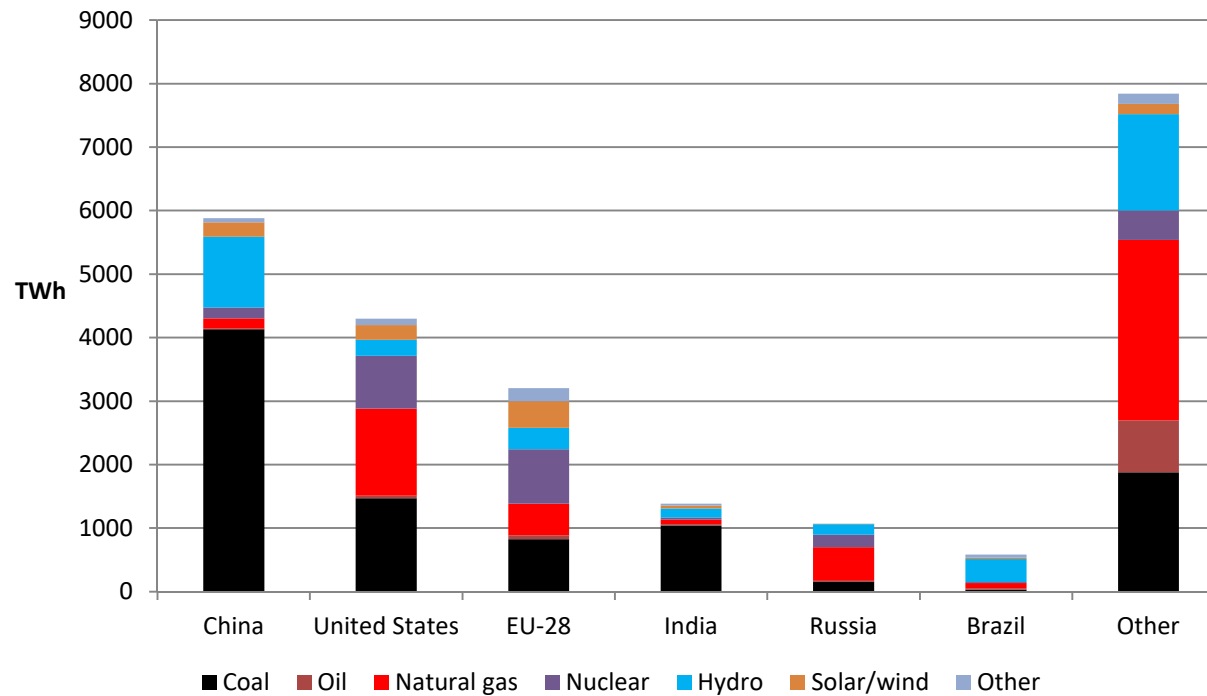
Source: IEA Coal Information 2017

**Power generation is the largest use of coal.  
At the same time, it is the sector with more alternatives for substitution**

# The power system today : coal still leading, but declining



Electricity generation by country and fuel (2015)

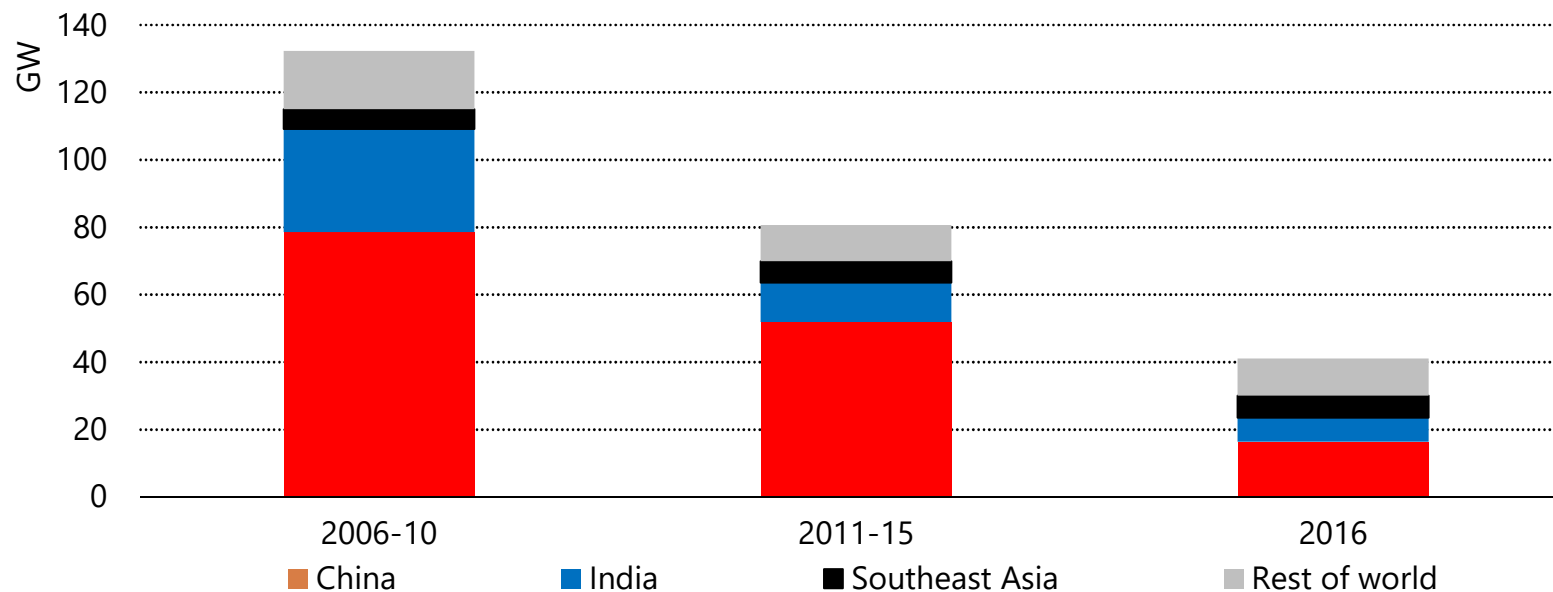


**Coal supplied over 41% of the electricity mix in 2013. In 2017, estimates are 37%**

# A wave of coal power investment is coming to a pause



Average annual final investment decisions for new coal-fired power capacity



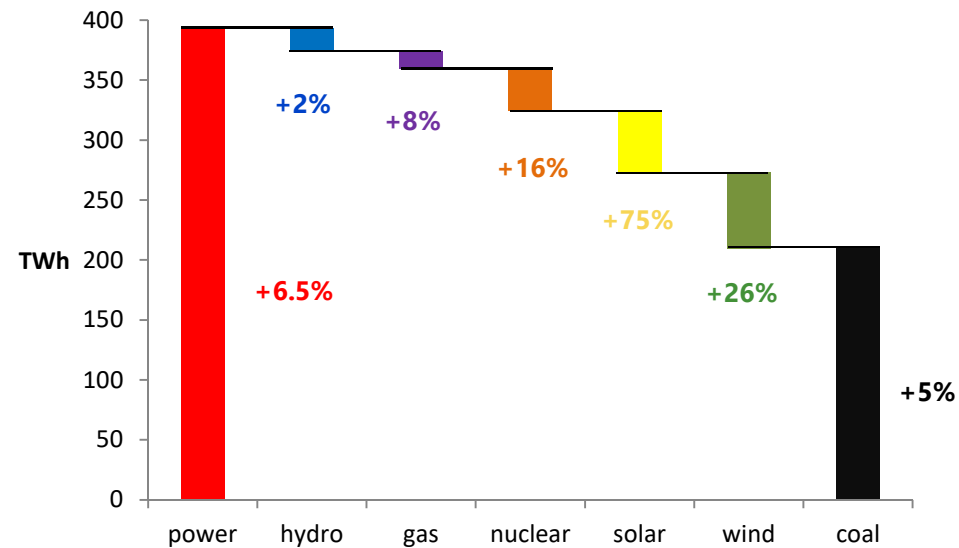
Source: IEA World Energy Investment 2017

**In 2016 the sanctioning of new coal power fell to the lowest level in nearly 15 years, hampered by competition from renewables and environmental challenges. Gas power FIDs surpassed coal for only the second time in the past decade.**

# China's power sector, the world's largest coal consuming sector



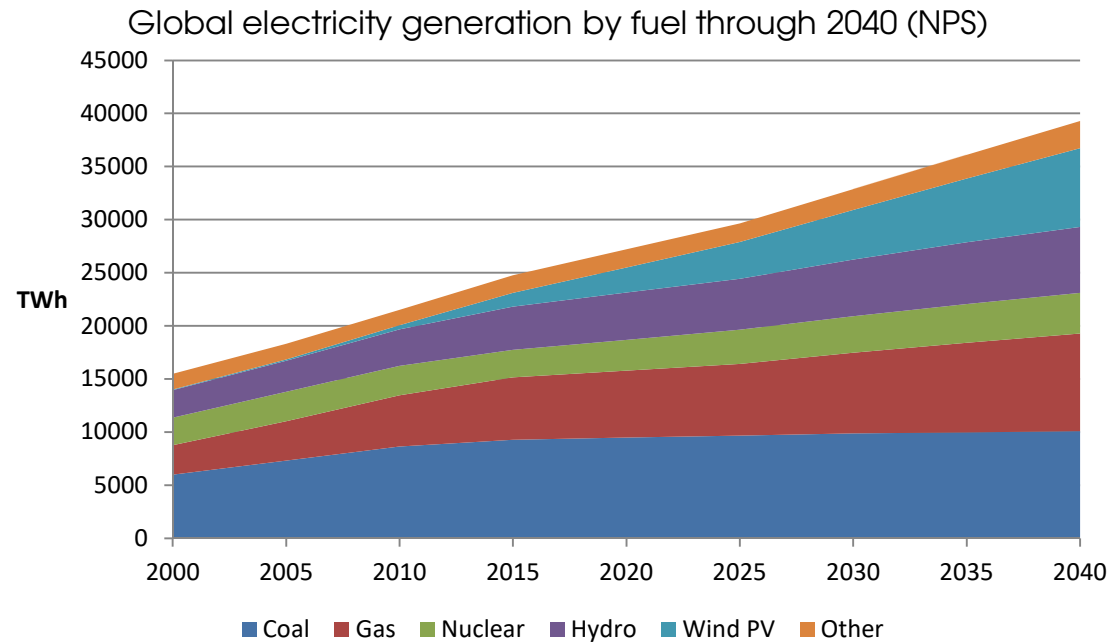
Difference of power generation by sources in China (2017 vs 2016)



Source: NEA, preliminary data

**Coal is the marginal supplier of electricity in China.  
When electricity consumption growth is strong, coal power generation grows**

# The power system tomorrow: coal stagnates under NPS scenario

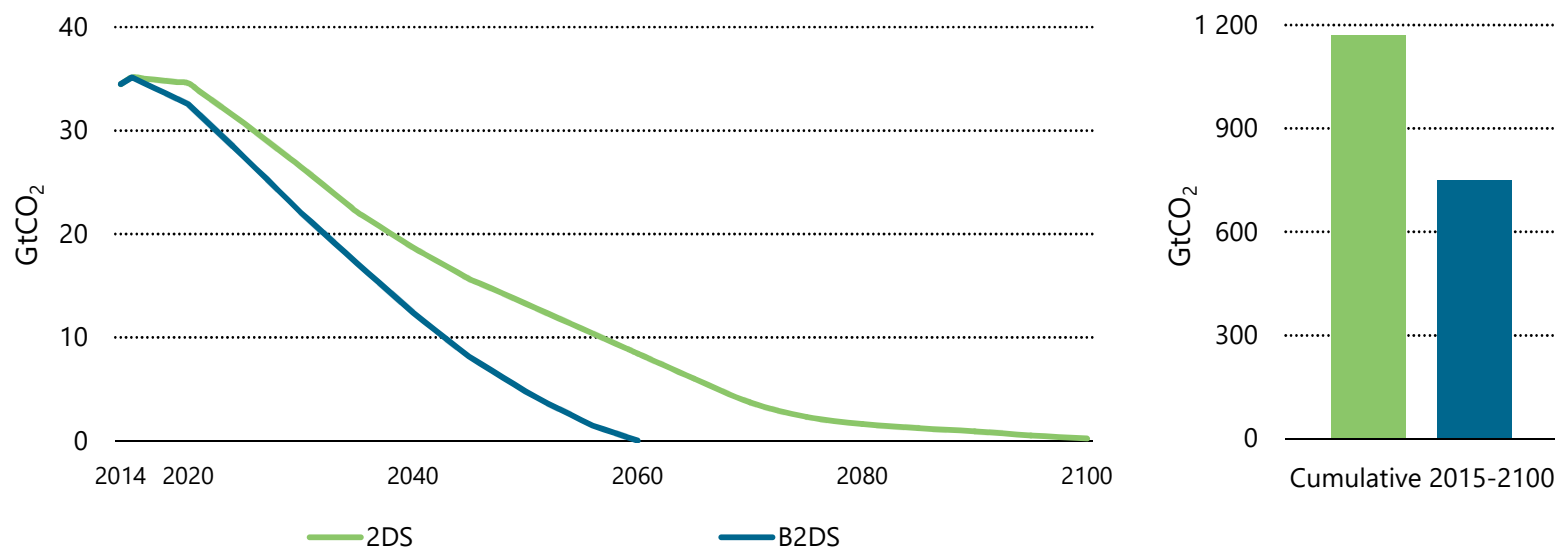


Source: IEA World Energy Outlook 2017

Whereas electricity consumption increases steadily, coal generation stagnates at around 10,000 TWh

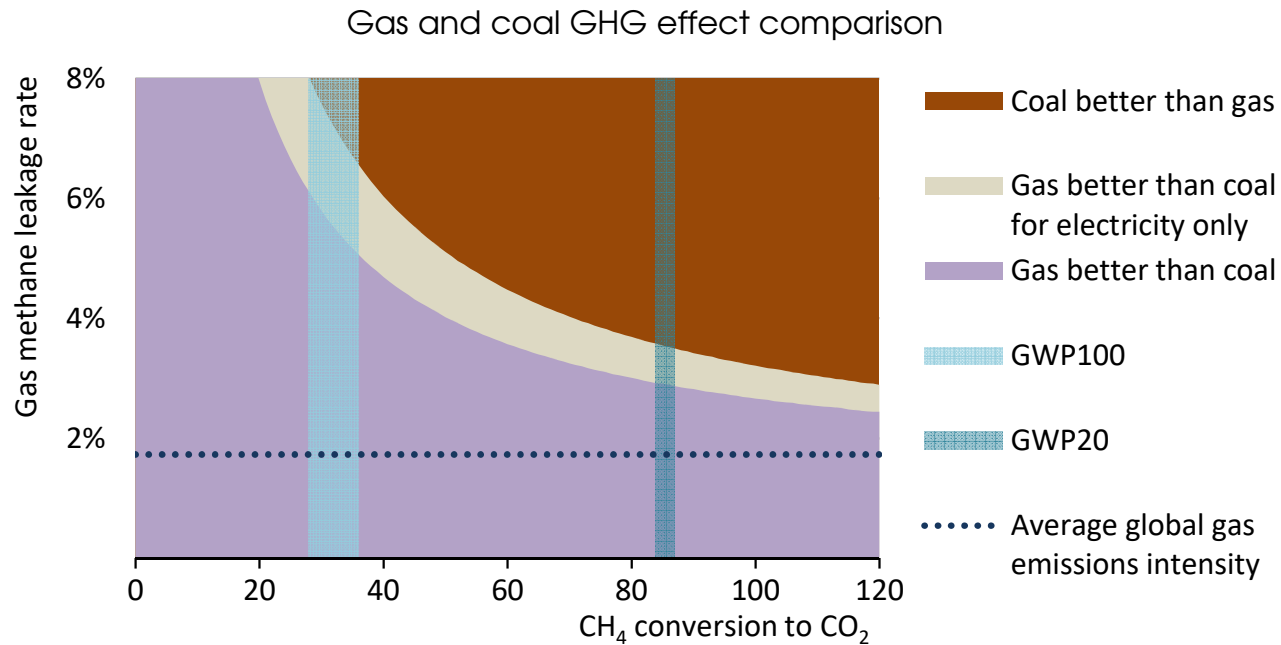


# Cumulative energy sector CO<sub>2</sub> budgets: 2DS and B2DS



**The 2DS requires around 740 GtCO<sub>2</sub> of cumulative emissions reductions to 2060, relative to the RTS  
Cumulative emissions are 36% lower in the B2DS compared with the 2DS**

# Greenhouse gas intensity of coal and gas



Source: IEA World Energy Outlook 2017

**The global average emissions intensity of gas is low enough for gas to result in fewer GHG emissions than coal regardless of the timeframe considered**

# Conclusions

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- After one decade of outstanding growth, global coal demand has entered a decade of stagnation
- The move of coal to Asia continues. Major growth will be in India and South East Asia
- China will remain the key player. Power generation is an area of growth, whereas residential and industrial demand will decline



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