



# Investing in coal – essential to meeting global energy access and climate objectives

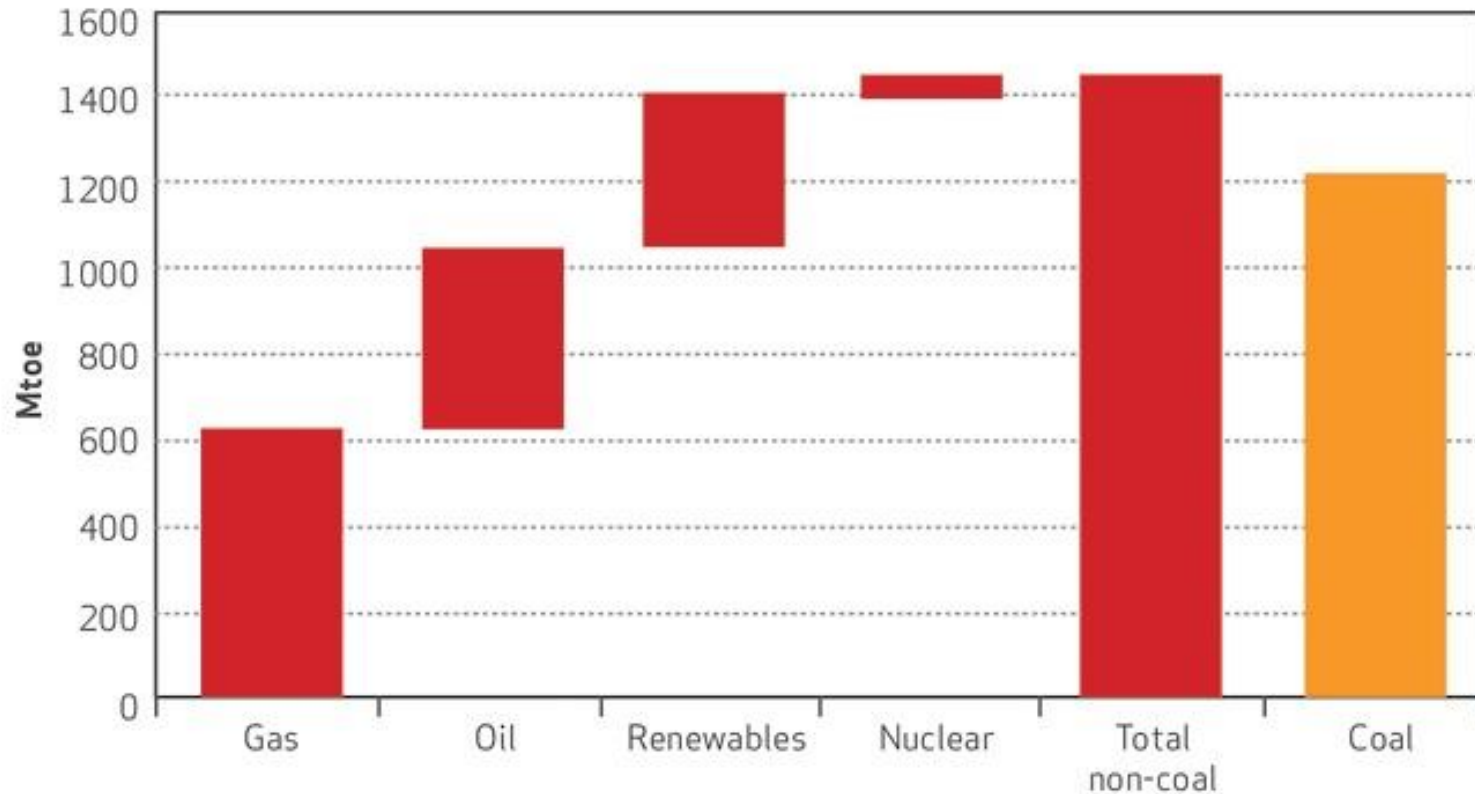
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Expert Group Stakeholder Meeting

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# Coal's critical role in the global economy

# The 21<sup>st</sup> century world has been built on coal



Source: IEA, WEO 2011

Source: International Energy Agency

# Global energy poverty is a huge challenge



Source: International Energy Agency, World Energy Outlook 2011

# “Energy access for all”

## In rural areas:

- Floor fan
- Mobile phone
- 2 light bulbs for 5 hours

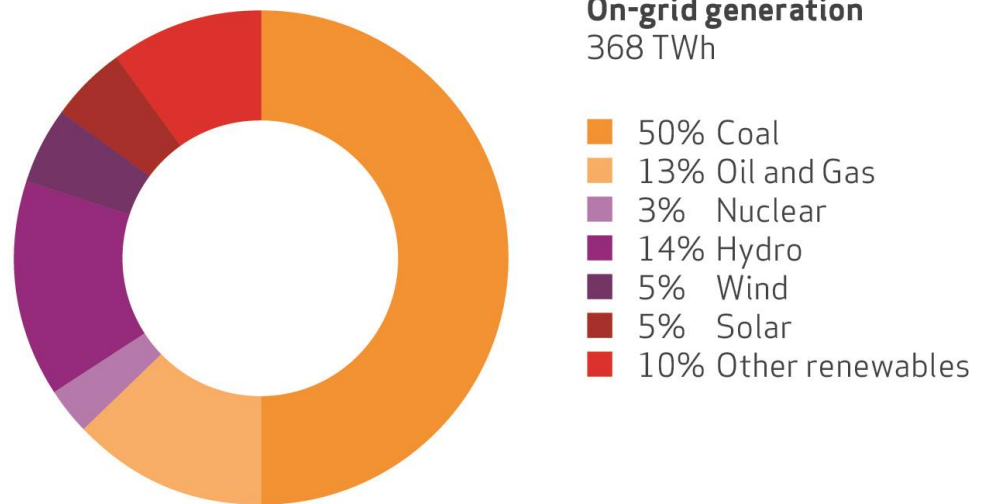
## In urban areas:

- Refrigerator
- 2<sup>nd</sup> mobile phone
- 2<sup>nd</sup> appliance

**NO ELECTRICITY  
FOR BUSINESS**

**\* 50% from COAL \***

Additional on-grid electricity generation by fuel in the Energy for All Case compared with the New Policies Scenario, 2030.



Source: World Energy Outlook, 2011

# Critical enabler

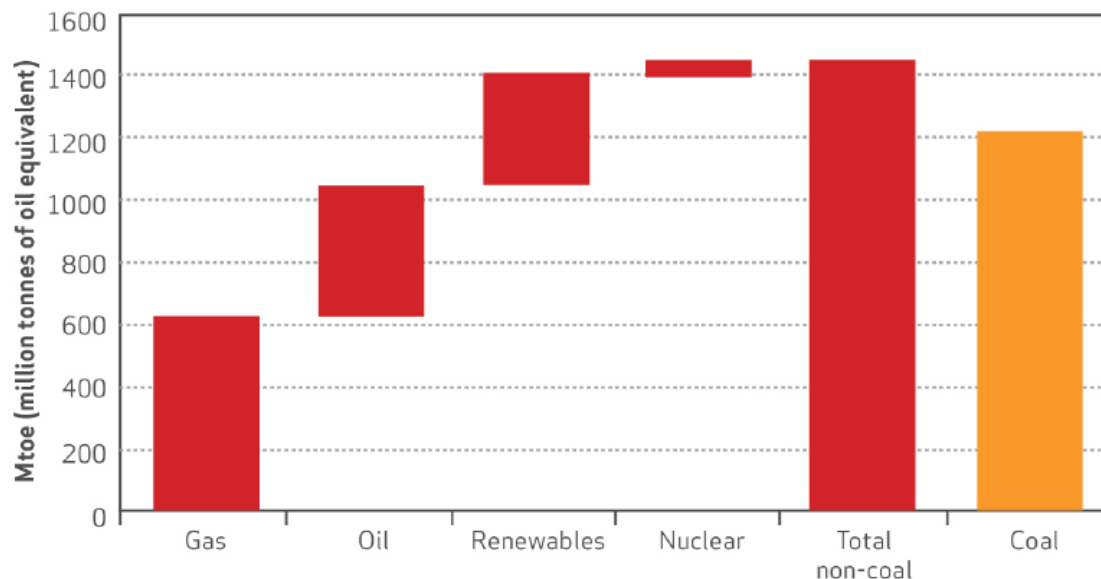
## Share of coal in primary energy consumption (%) in industry subsectors

	China	India
Iron and steel	95	92
Chemical and petrochemical	69	16
Non-ferrous metals	76	78
Non-metallic minerals	89	94

68%

COAL IS USED TO  
PRODUCE 68% OF THE  
WORLD'S STEEL OUTPUT

## Incremental world primary energy demand by fuel, 2000 - 2010

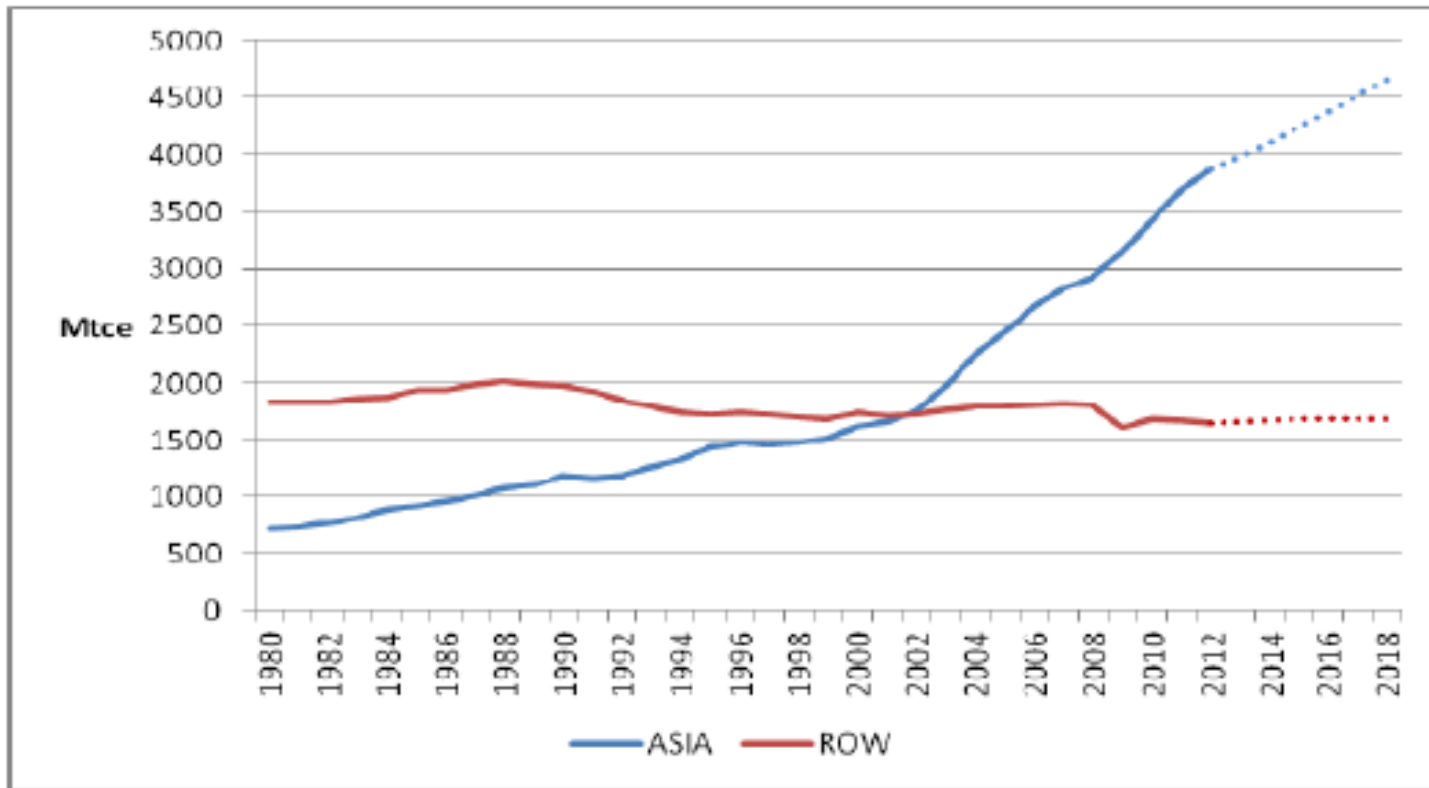


41%

COAL IS USED TO  
GENERATE 41% OF THE  
WORLD'S ELECTRICITY

# And coal isn't just a developing world fuel

## COAL DEMAND TRENDS AND PROJECTIONS

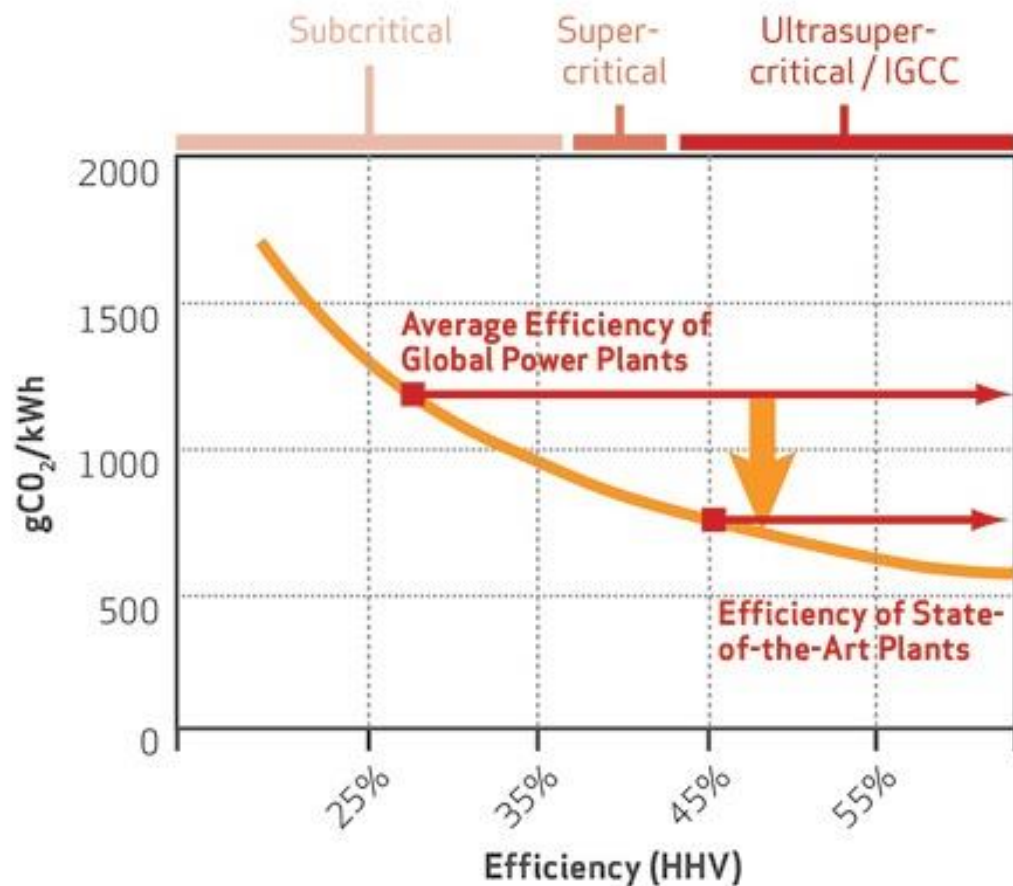


Source: International Energy Agency

# Investing in coal to ensure sustainability



# Reconciling rising coal consumption with climate change priorities



Supply side efficiency is valuable ...

1% increase LHV efficiency = 2–3% points decrease in CO<sub>2</sub> emissions

Reduces 1.7 GtCO<sub>2</sub> / yr

22% ▼ coal emissions

5.5% ▼ global emissions

an essential prerequisite for CCS

Source: IEA "Focus on Clean Coal" (2006)

Note: 1% increase in efficiency = 2-3% decrease in emissions

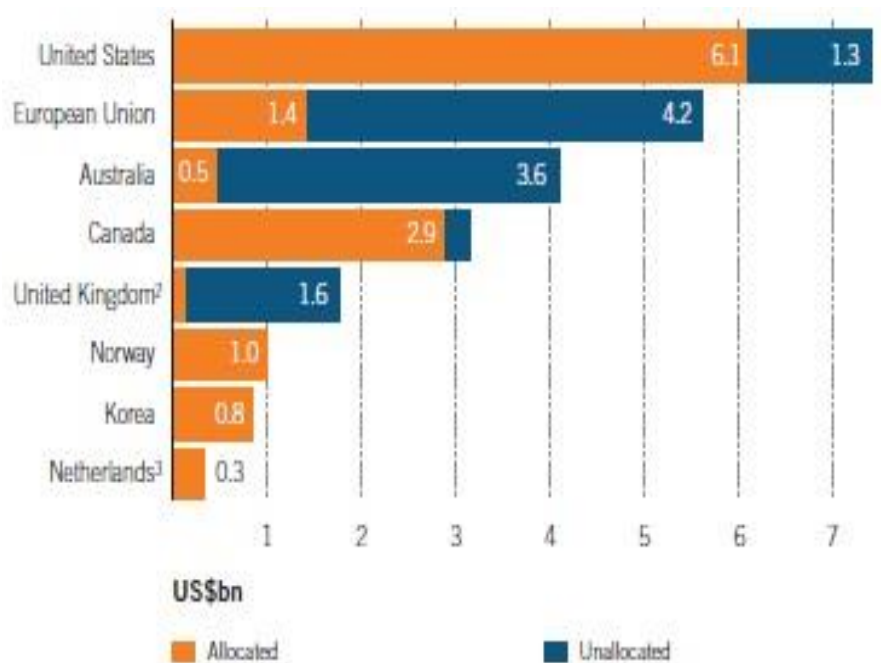
# Comparative climate actions

## Initiatives needed to cut 2 Gt of CO<sub>2</sub> emissions

- Run the **EU ETS** for **53 years**
- Run the **Kyoto Protocol** 3 times
- Multiply the world's **current solar power capacity** by **195**
- Increase the **efficiency of all coal power plants** from **34% to 40%**

# ...but in comparison to other low-carbon technologies CCS is seriously underfunded

## Public funding support commitments to CCS demonstration



## Public funding on low carbon

- Nuclear: \$45 billion annually
- Renewables: \$27 billion annually
- CCS: \$12.2 billion since 2005

The industry is investing in clean technology



And we are about to switch on coal CCS





# WORLD COAL ASSOCIATION

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