



The role of gas in developing countries and its role in addressing climate change.

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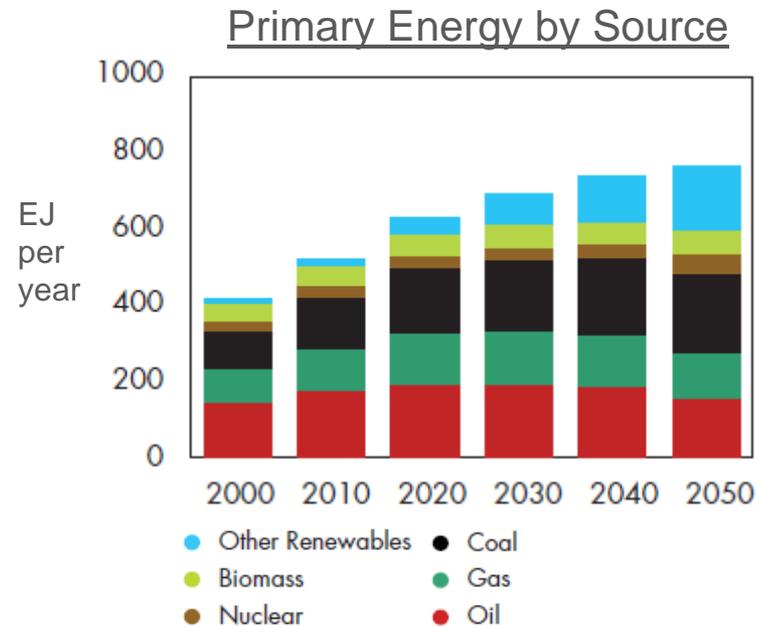
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KEY MESSAGES

- Energy demand is growing fast
- Society needs make the right energy and CO2 mitigation choices
- Natural gas is Acceptable, Affordable and Abundant
- Increasing the use of natural gas in power generation can play an important role in meeting increasing demand for electricity globally
- For most countries, using more gas in power generation can make the largest contribution at the lowest cost to meeting their emission reduction targets in this decade.
- Gas can support developing countries' efforts to meet their CO2 commitments
 - Market based approaches and support through Clean Development Mechanism
 - By including in NAMAs

WORLD DEMAND FOR ENERGY IS GROWING FAST

- Population growth and economic development could double energy needs by 2050
- The mix of energy sources will change gradually



Source: Shell Scenarios/IEA

SHELL'S PRIORITIES

Our priorities are:

1. **Natural Gas**
2. **Biofuels**
3. **Carbon Capture and Storage**
4. **Energy Efficiency**



Gas, Perdido, USA



Sugar cane for Biofuels, Brazil



Carbon Capture Research,
Mongstad, Norway



SEPC, Singapore (part of the global
energy efficiency programme)

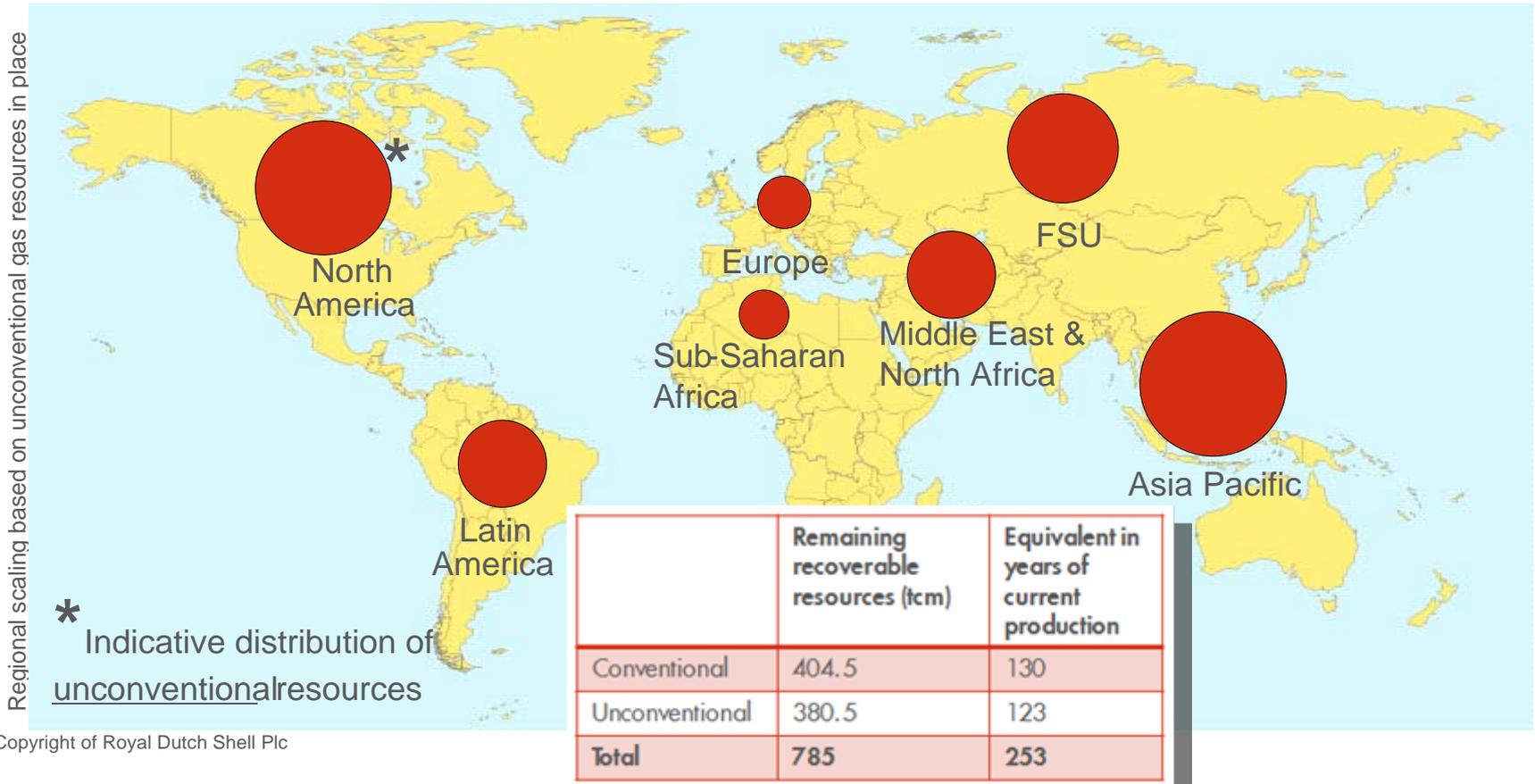
NATURAL GAS FOR ELECTRICITY

- Power generation emits one third of the world's CO₂
- A modern gas plant emits 50% less CO₂ than a modern coal plant
- More power from natural gas would make the biggest contribution, at the lowest cost, to emission targets this decade
- Gas + CCS is lower cost and delivers better CO₂ savings than any other competing energy source including coal or wind.



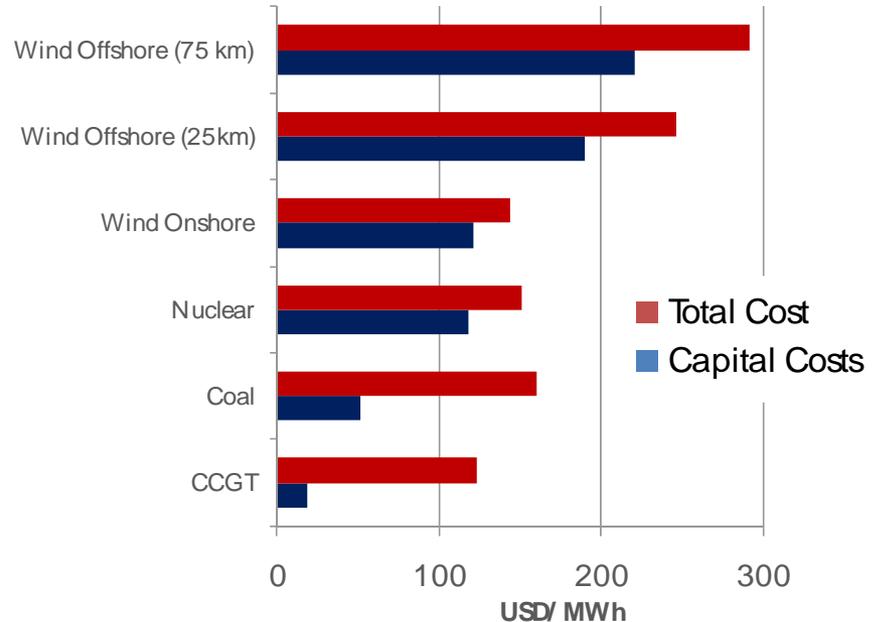
ABUNDANT

- Gas resources are plentiful and geographically diverse
- Conventional and unconventional recoverable gas resources can supply 250 years of current global gas consumption.
- US UCG has transformed the LNG market



AFFORDABLE

- Attractive economics for electricity producers
- Gas plants more energy efficient than coal plants
 - 55-60% vs. 34-42%
- Gas has much lower capital costs per MW installed:
 - 50% of coal
 - 20% of nuclear
 - 15% of wind
- Key for cash-strapped economies!
- Total cost for gas is the cheapest

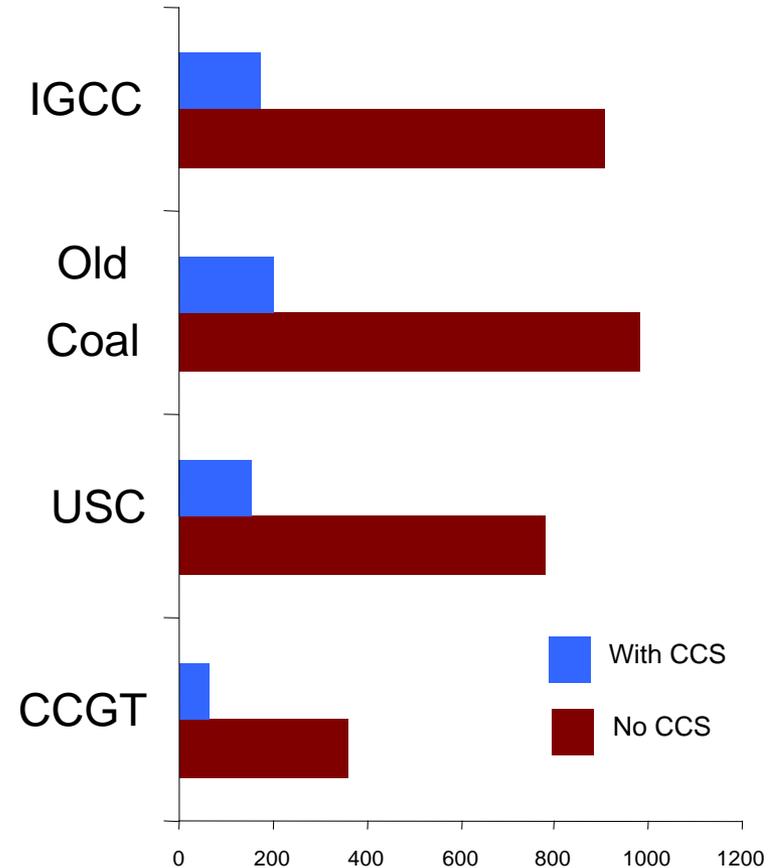


CCGT: Combined Cycle Gas Turbine
Total Cost = Capital + Fuel + Operating

Source: DECC (Mott MacDonald) June 2010

ENVIRONMENTALLY ACCEPTABLE

- Gas is the cleanest-burning fossil fuel
- Gas plants emit:
 - 50% less CO₂ than a modern coal plant
 - 60-70% less CO₂ than an old coal plant
- There are still hundreds of old coal plants in operation today
- Better for other pollutants
- Lower water use



IGCC: Integrated Gasification Combined Cycle Coal

USC: Ultra Super Critical Coal

CCGT: Combined Cycle Gas Turbine

Source: Shell analysis

OPPORTUNITIES IN GLOBAL CLIMATE APPROACHES

- Clean Development Mechanism
 - Already used to support a number of CCGT projects
 - ‘Fuel switching’ projects have been developed for Brazil, South Africa, China and India
 - CDM should continue and expand so more countries can access it

- Nationally Agreed Mitigation Actions (NAMAs)
 - Opportunity for NAMAs to include gas to meet climate mitigation and development objectives.

SUMMARY

- Shell's role is to meet our customers' growing need for reliable affordable energy
- Our response to the CO₂ challenge focuses on cost-effective solutions available now – including use of natural gas
- We hope that negotiators at the COP will underline commitment to a carbon market based approach to tackling climate change. This would provide the most flexible and effective way of responding, ensuring that those options that are lowest cost and fastest to implement are used first.
- We should think of natural gas as a vital ally in the search for a sustainable energy future.

