

Edge Debate 49 – Shale Gas
ICE, 23 April 2012

Shale gas: *Bane or blessing?*

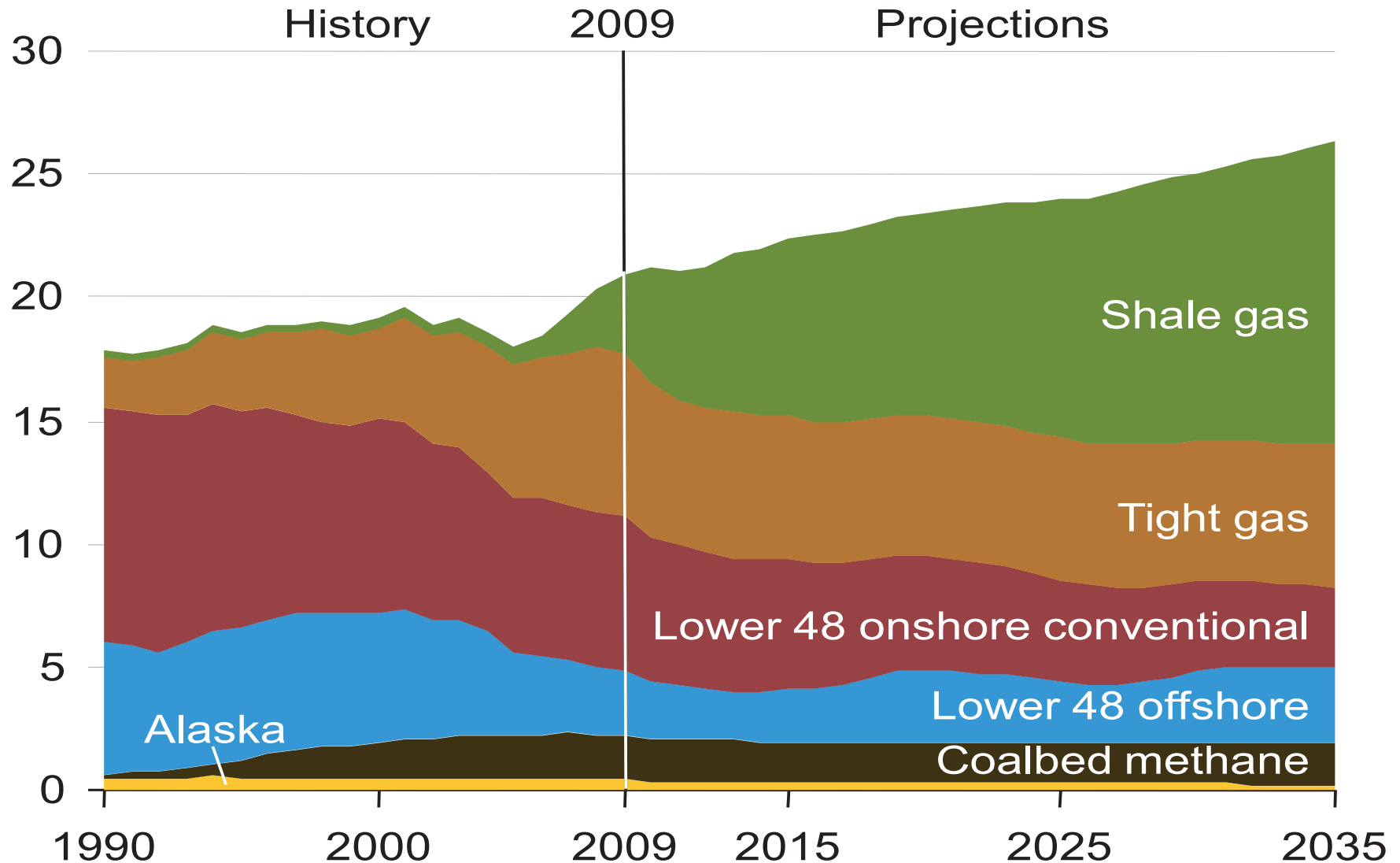
Bill Bordass

the **USABLE BUILDINGS TRUST**

www.usablebuildings.co.uk

bilbordass@aol.com

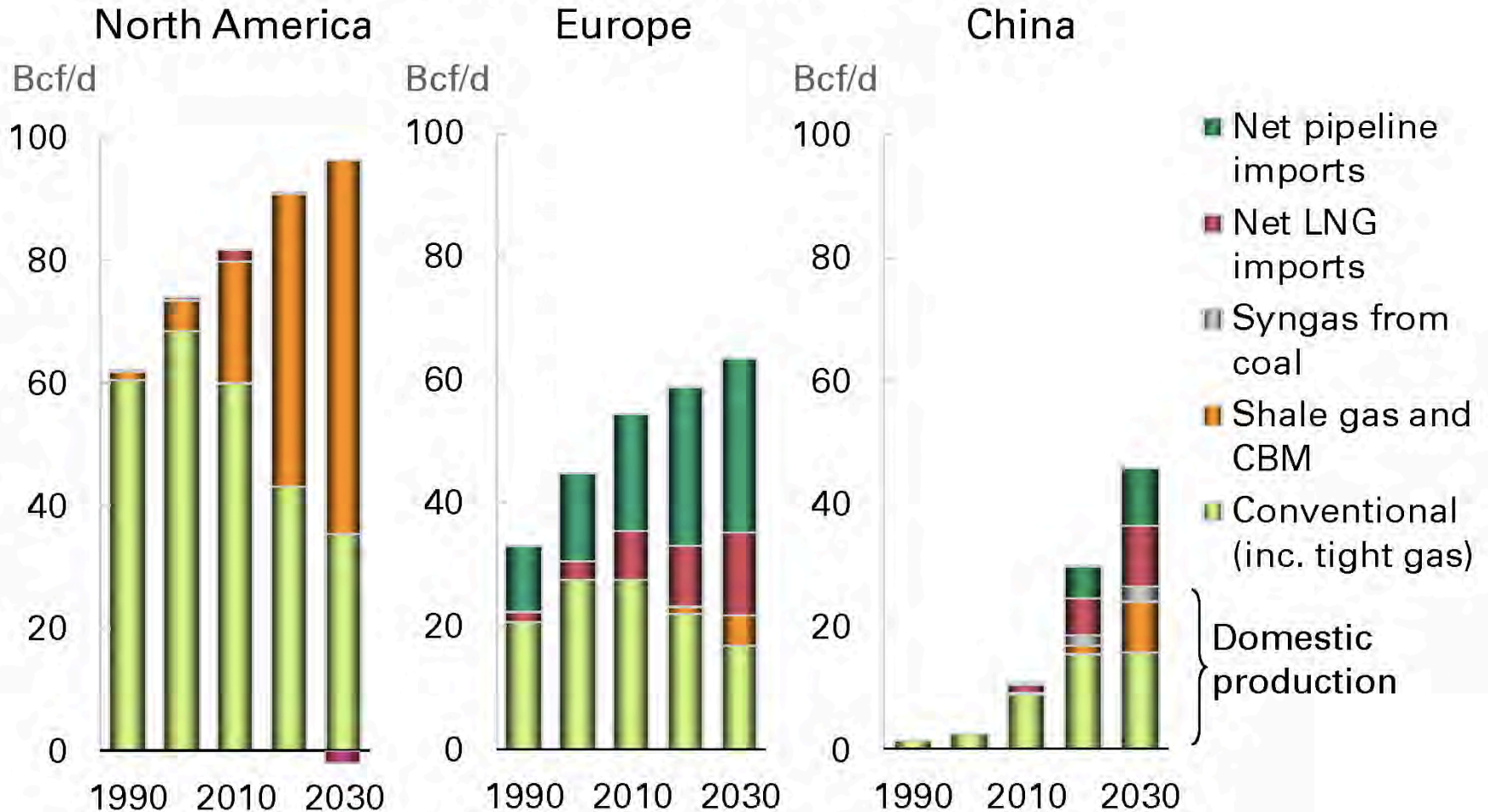
US Projections of shale gas production



SOURCE: US Energy Information Administration, *Annual Energy Outlook 2011*, Figure 2, page 3 (2011)

BP projections of regional gas production

Sources of gas supply, by region



But since then ...

Lord Browne, a director of shale gas "fracking" company Cuadrilla, said in an interview with The Independent:

"Lancashire has huge potential ... If they had the will they could perhaps become the centre of shale gas for Europe, much as Aberdeen became the centre of oil and gas for Europe. It is not inconceivable."

Lord Browne hoped the Government will approve Cuadrilla's plans to resume fracking:

"We could potentially double the reserves of gas in the UK, we could add 50,000 jobs maybe, and probably even reduce the price of gas."

17 April 2012. Report to DECC on seismic effects recommends resumption, subject to cautious seismic procedures.

DECC is considering its decision over the next six weeks.

Shale gas

some advantages and disadvantages

POSITIVES

A new fuel

UK extraction can reduce fuel imports

Buys us time

Reduced emissions from fuel burning

Can fill in for intermittent renewables

Lower energy costs

Local employment

Fracking releases tightly bound gas

NEGATIVES

A fossil fuel

At what environmental cost?

Business as usual can continue

Effect of methane leakage

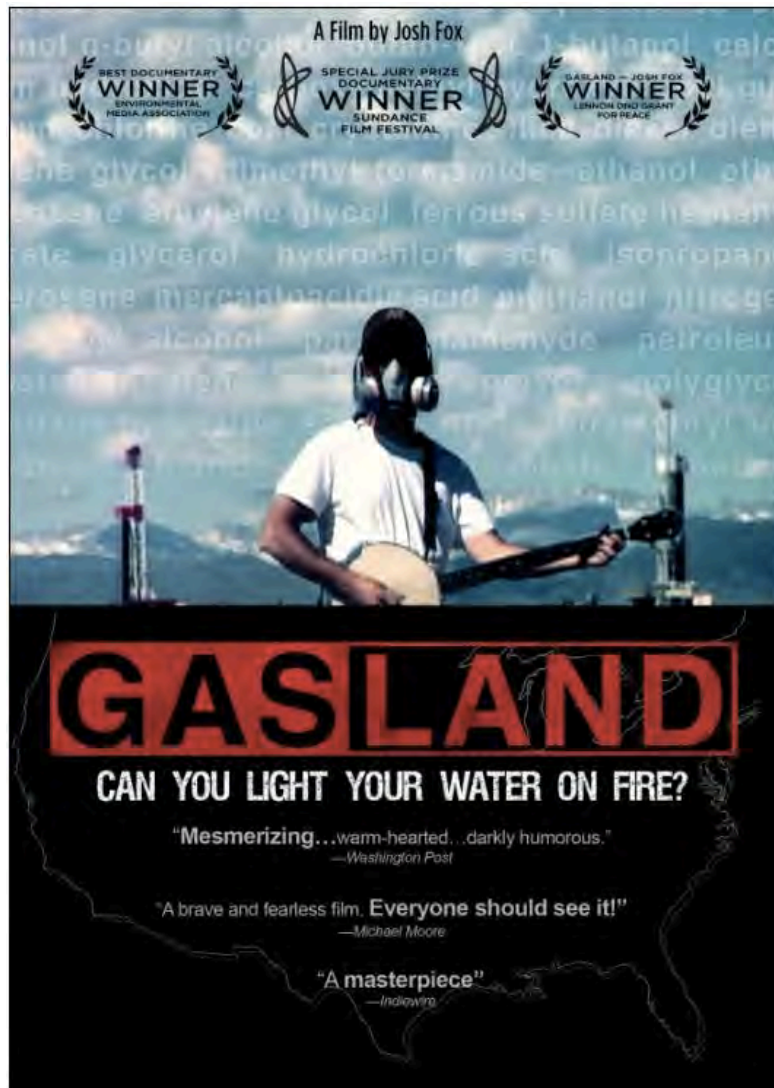
Postpones investment in renewables

Less incentive to reduce demand

Much less labour intensive than local efficiency and renewables

Could threaten reservoirs proposed for carbon dioxide storage.

Environmental effects of fracking have been well publicised, *e.g. on aquifers*



The Halliburton-developed drilling technology of "fracking" or hydraulic fracturing has unlocked a "Saudi Arabia of natural gas" just beneath us. But is fracking safe? When filmmaker Josh Fox is asked to lease his land for drilling, he embarks on a cross-country odyssey in the USA uncovering a trail of secrets, lies and contamination

“Air sampling reveals high emissions from gas field” — NATURE 7 Feb 2012

“ When US government scientists began sampling the air from a tower north of Denver, Colorado, they ... eventually linked the mysterious pollution to a nearby natural-gas field.

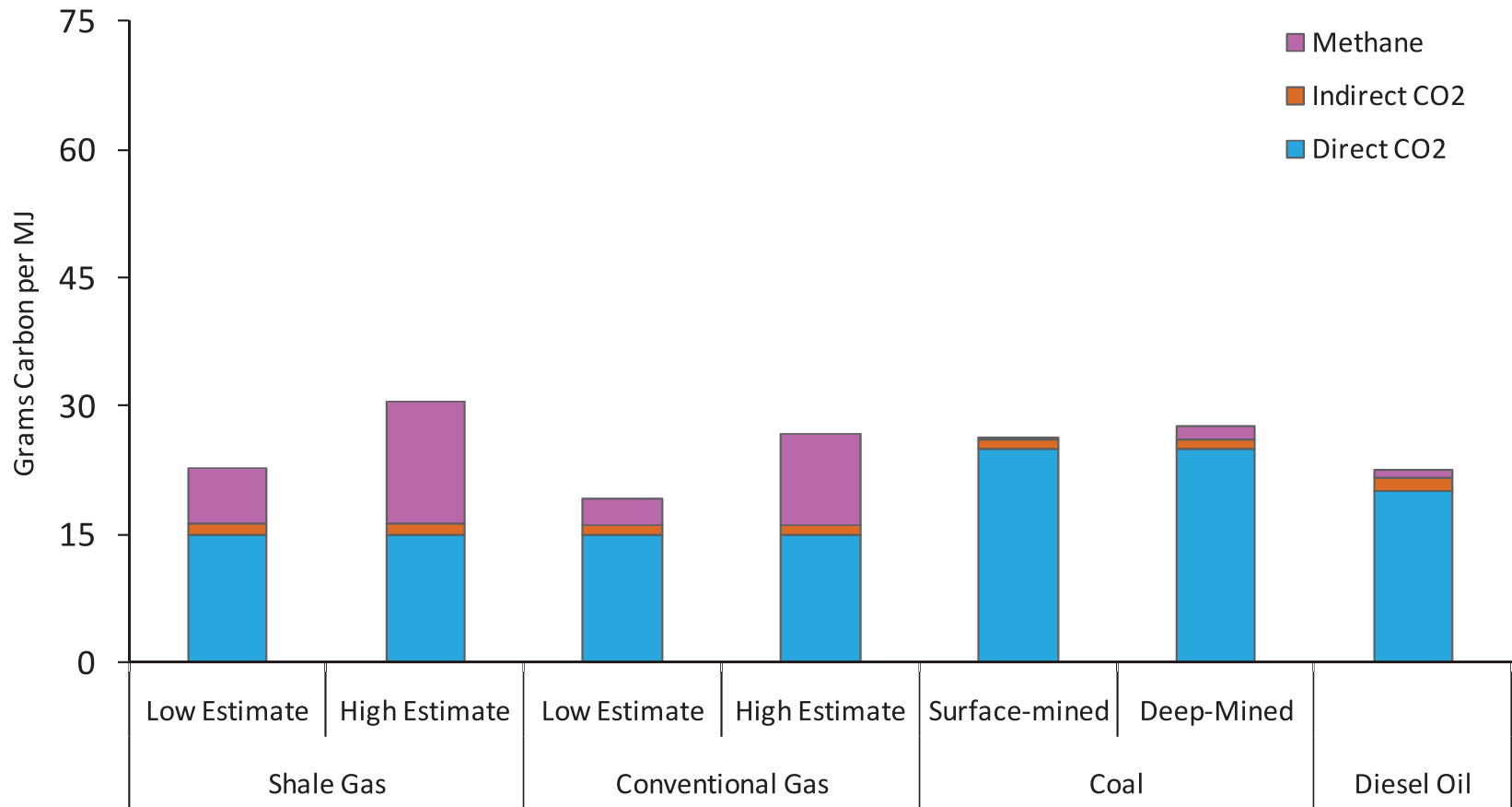
“ The study estimates that natural-gas producers in ... the Denver-Julesburg Basin are losing about 4% of their gas to the atmosphere — not including additional losses in the pipeline and distribution system. This is more than double the official inventory, but roughly in line with estimates made in 2011 that have been challenged by industry.

... “releases of that magnitude could effectively offset the environmental edge that natural gas is said to enjoy over other fossil fuels.”

Greenhouse effects of shale gas

(3.6-7.9% lifetime methane leakage @ GWP 25)

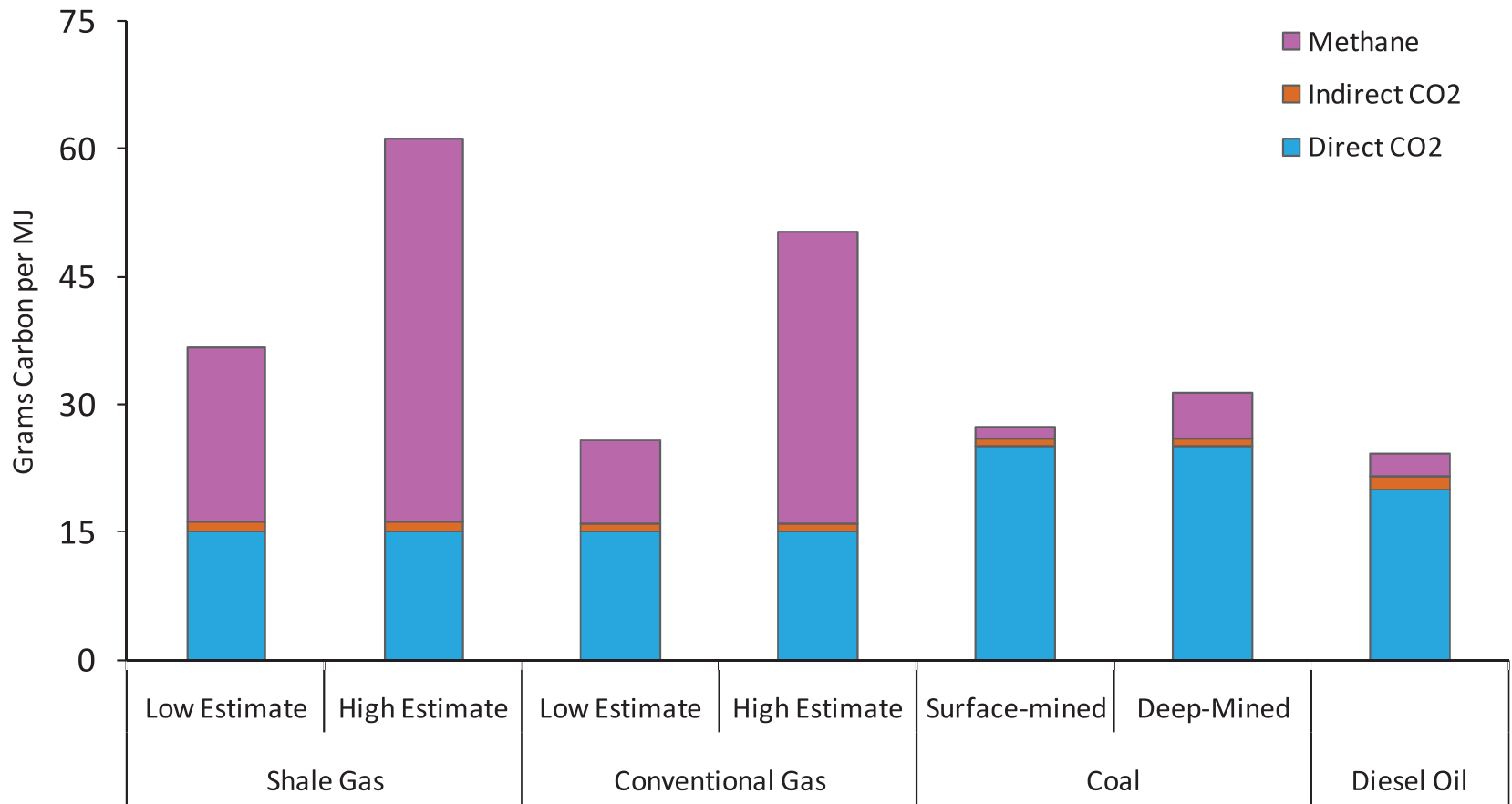
B. 100-year time horizon



Greenhouse effects of shale gas

(3.6-7.9% lifetime methane leakage @ GWP 72)

A. 20-year time horizon



Things for the Edge to consider

related to UK buildings and energy policy

- Historically, the UK has enjoyed a wealth of fossil fuels: coal, oil and natural gas.
 - We only became a nett fossil fuel importer in 2005.
 - We could have used North Sea gas and oil profits to invest to wean ourselves off fossil fuels ... *but we didn't*.
 - Instead we have a less energy-efficient building stock and infrastructure than in the northern European countries that were more dependent on oil imports in 1973 ... *plus*
 - a costly backlog to deal with, in a more constrained situation *physically, economically, legally, environmentally*.
 - Will shale gas stop us biting the bullet yet again?
 - Or could we use it wisely to help make the transition?
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Esbjerg, Denmark

LEFT: *CHP plant (coal/ biomass) with 47,000 m³ heat storage - linked to a waste burning CHP plant.*

BELOW: *Wind turbine parts awaiting shipping.*



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