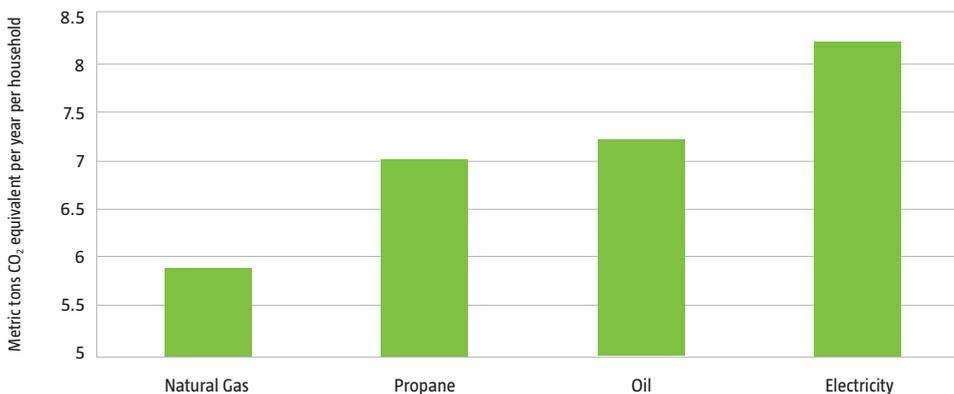


Shale gas – the cleanest fossil fuel

Full-Fuel-Cycle Greenhouse Gas Emissions of a Typical Household in the USA



Source: AGA Playbook 2013

The abundance of shale gas reserves, particularly in the US, has led to a boom in natural gas exploration and production. Shale gas is especially attractive for countries that do not have any other fossil fuel resources, as it helps decrease their dependence on foreign imports.

However, the exploitation of shale resources has raised a series of environmental concerns. Hydraulic fracturing, or fracking – which pumps a mixture of water, sand and chemicals through well drilled into the shale formation to release the natural gas – requires large volumes of water, potentially straining local water resources. Other concerns involve the potential for groundwater contamination from chemicals used in fracking.

Despite such reservations, shale gas can not be dismissed altogether. Cheap shale gas offers many advantages over coal and other fossil fuels. CO₂ emissions from coal range between 900 and 1200 kg/MWh, versus a worst case all inclusive estimate of 570–640 kg/MWh for shale gas. Companies have been steadily improving this picture by adopting technologies and practices reducing the emissions of methane, by for example participating in programs such as EPA's Natural Gas STAR. In addition, shale gas does not emit particulates or sulfurs and emissions of nitrous oxide are much lower than coal. Further, the amount of water used to produce an equivalent amount of energy from shale gas remains about 7 times smaller than for coal. In addition, the leading natural gas companies increasingly use water distributed by water utilities such as Aqua America or American Water Works, rather than relying on local groundwater resources and are increasing the proportion of recycled water used to extract natural gas.

Regarding concerns over groundwater pollution, aquifers are usually located between 50 to 500 feet (15–150 meters) deep, while most

shale formations are much deeper, at over 5,000 feet (1,500 meters) underground. The risk of migration of gas from man-made fractures in the rock to the aquifer should therefore be limited.

Companies that develop cleaner, less disturbing natural gas extraction technologies, implement effective water management strategies and are transparent about their operations should benefit from the booming shale gas market. In fact, exploration and production companies have already begun increasing disclosure. For example over 200 energy-producing companies have registered over 15,000 well sites through FracFocus, a US web-based hydraulic fracturing chemical registry that provides the public access to reported chemicals used for hydraulic fracturing within their area, an effort that has been led by companies such as Southwestern Energy. Such initiatives help diminish public mistrust of shale gas exploration and recognize the true benefits of a cleaner, cheaper alternative to traditional fossil fuels.

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