NATURAL GAS

NATURAL GAS

23% OF THE ENERGY CURRENTLY PRODUCED IN THE U.S.
COMES FROM NATURAL GAS

POLLUTION COMPARED TO COAL

*based on pounds of output per billion btu of energy produced

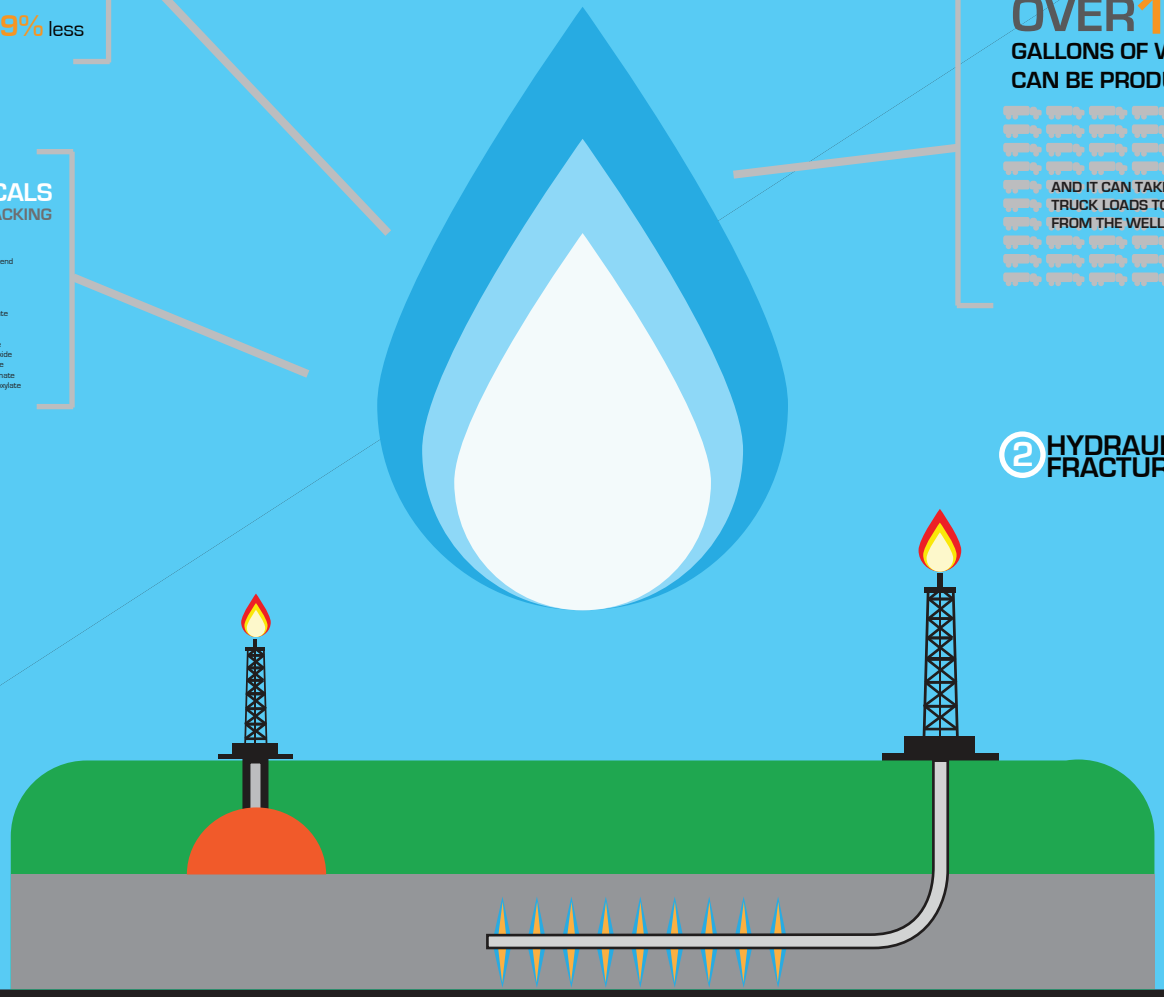
CARBON DIOXIDE	43.75% less
CARBON MONOXIDE	80.77% less
NITROGEN OXIDES	79.87% less
MERCURY	99.99% less

THERE ARE OVER 40 CHEMICALS
MIXED INTO THE WATER USED IN HYDROFRACKING

Hydrochloric Acid	Isopropanol	Polyacrylamide
Glutaraldehyde	Formic Acid	Guar Gum
Quaternary Ammonium Chloride	Acetaldehyde	Polysaccharide Blend
Tetrakis Hydroxymethyl	Petroleum Distillate	Ethylene Glycol
Ammonium Persulfate	Hydrotreated Light Petroleum	Citric Acid
Sodium Chloride	Potassium Metaborate	Acetic Acid
Magnesium Peroxide	Triethanolamine Zirconate	Thioglycolic Acid
Magnesium Oxide	Sodium Tetraborate	Sodium Erythorbate
Calcium Chloride	Boric Acid	Lauryl Sulfate
Choline Chloride	Zirconium Complex	Isopropanol
Tetramethyl ammonium chloride	Borate Salts	Sodium Hydroxide
Sodium Chloride	Ethylene Glycol	Potassium Hydroxide
Phosphonic Acid Salt	Methanol	Sodium Carbonate
Lauryl Sulfate	Isopropyl Alcohol	Potassium Carbonate
Naphthalene	2-Butoxyethanol	Sodium Polycarboxylate

OVER 1,000,000
GALLONS OF WASTE WATER
CAN BE PRODUCED BY A SINGLE WELL

AND IT CAN TAKE UP TO 100 TANKER TRUCK LOADS TO REMOVE THIS WASTEWATER FROM THE WELLSITE



FORMS OF EXTRACTION:

1 RESERVOIR EXTRACTION

- Natual gas is also located in reservoir pocets throughout the earths crust.
- These may be drilled into directly allowing for natural preassure to push the gas out of the well and up through the pipe.
- Preassure is the most important part of this process, at times gas or other compounds must be re-injected into the ground to avoid the death of a well or a possible colapse.
- Reservoirs of these kinds are commonly found when drilling for oil.

2 HYDRAULIC FRACTURING

IS THE PROCESS THROUGH WHICH NATURAL GAS CAN BE REMOVED FROM SHALE ROCK FORMATIONS WHICH WERE PREVIOUSLY IN-ACCESSABLE

- The well is drilled vertically until the shale formation is reached, aprox. 8,000-10,000ft underground.
- It then travels horizontally through the shale for several thousand feet.
- A perforation gun is lovered into the pipe, where it blasts into the shale where the natural gas is trapped.
- A mix of water, sand and chemical additives is pressurized and pushed into the well in order to widen the shale fractures. Natural preassure forces the liquids back through the pipe to the surface.
- As the fluid recedes, sand grains (or ceramic pellets) remain in the fractures, holding them open so pressurized gas can escape and rise up through the well.

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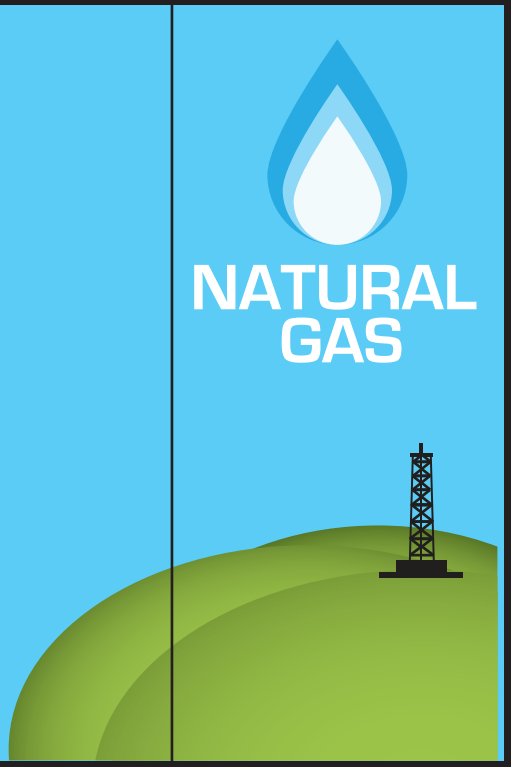

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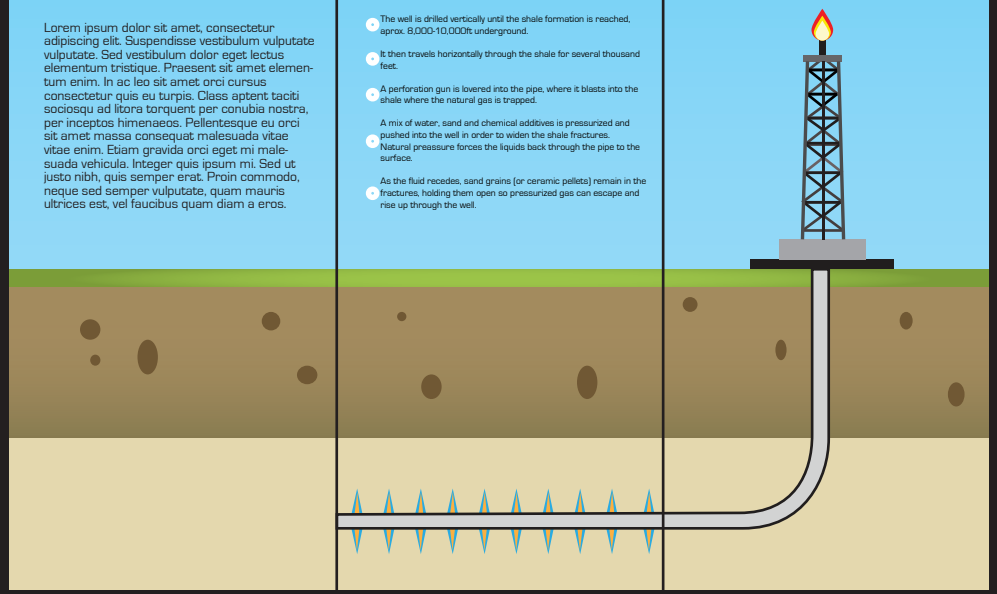
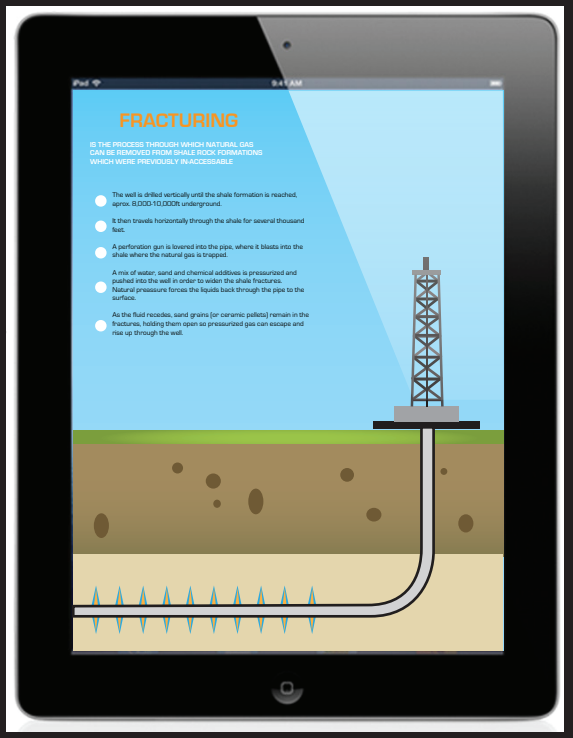



Natural Gas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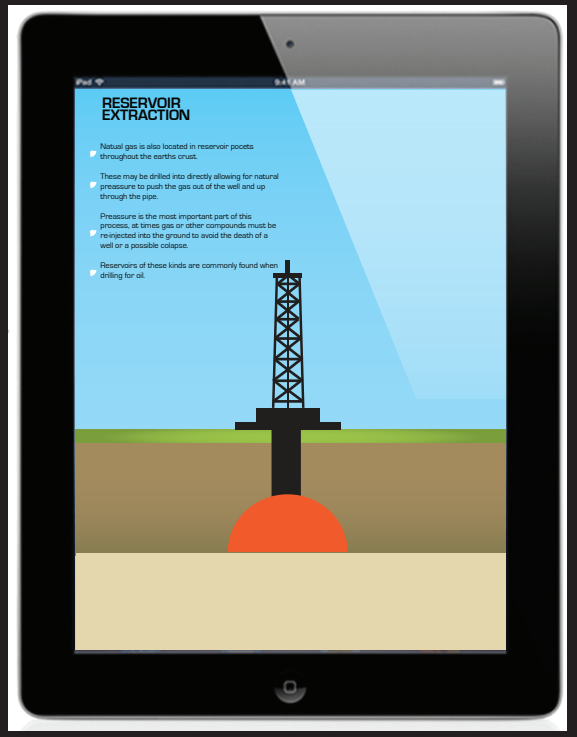
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