



Unconventional gas: new opportunities for development and risks for environment



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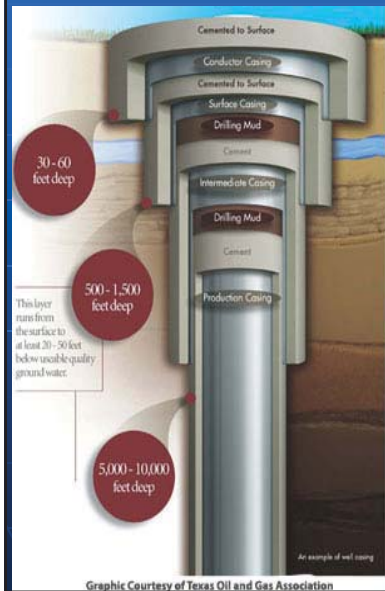
Prague
September 13th, 2013

Potential risks of unconventional gas extraction

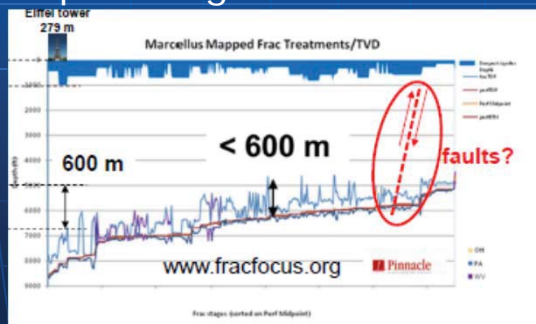
- noise pollutions;
- landscape changes;
- usage of chemical agents and hydrofracturing;
- water processing, utilization and flowback water treatment;
- potential pollution of water aquifers;
- greenhouse gases emission to atmosphere;
- increase of seismic activity.



Safe vertical distance to the aquifer <600m

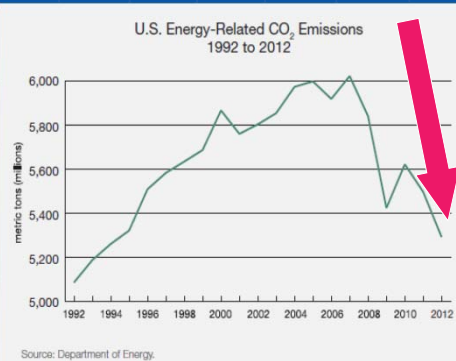


- Gas shales typically occur at depth of 2-3 km, and drinking water aquifers at 200-300 m
- Quadruple casing helps to protect ground water



New technologies reducing emissions

By January 2015, all new natural gas wells are required to include green completions (also known as reduced emissions completions or RECs), thereby further reducing emissions. Additional new requirements will also impact tanks, pneumatic devices, leak detection and leak control.



Location of world deposits of gas hydrates
"burning ice"

220 fields, global reserves: ~ 250 trln. cub. m

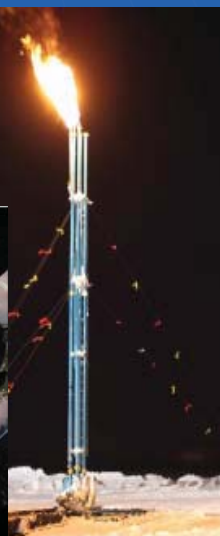
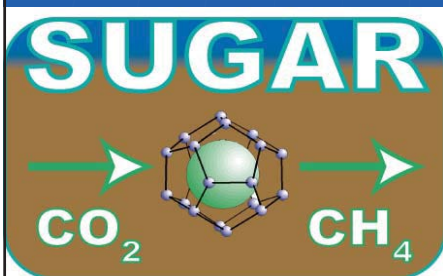


Global natural gas reserves: 187.1 trln. cub. m.

(BP Statistical Review 2011)

SUGAR (Submarine Gas Hydrated Reservoirs):

Injection of CO₂ into gas hydrated accumulations
might provide extraction of CH₄ by replacement and
safer utilization of CO₂



OSCE as a platform for exchange of experience could serve for:

- initiating discussions at different levels: academic, business circles and civil society;
- accomplishing geologic exploration in Europe for evaluation of commercially extractable unconventional gas resources and conditions of their extraction;
- transfer of advanced technologies between participating OSCE states;
- encouraging elaboration of adequate regulatory mechanisms between participating OSCE states;
- raising public awareness concerning risks which occur during unconventional gas extraction and their minimization.

**Thank you for
your attention!**

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