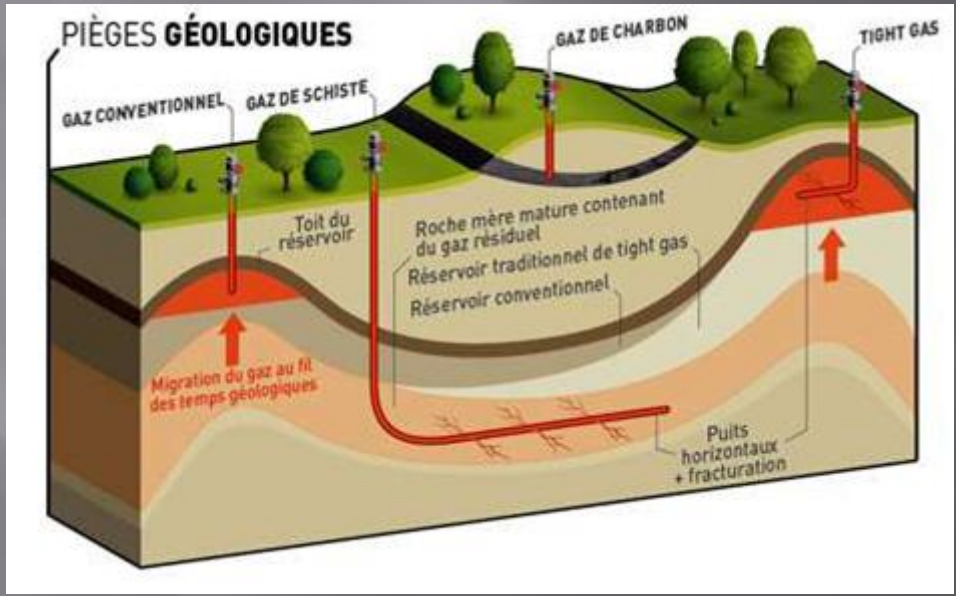


***Risks Caused by the Shale Gas
Exploitation
and Climate Change
Adaptation***



WHAT IS SHALE GAS?

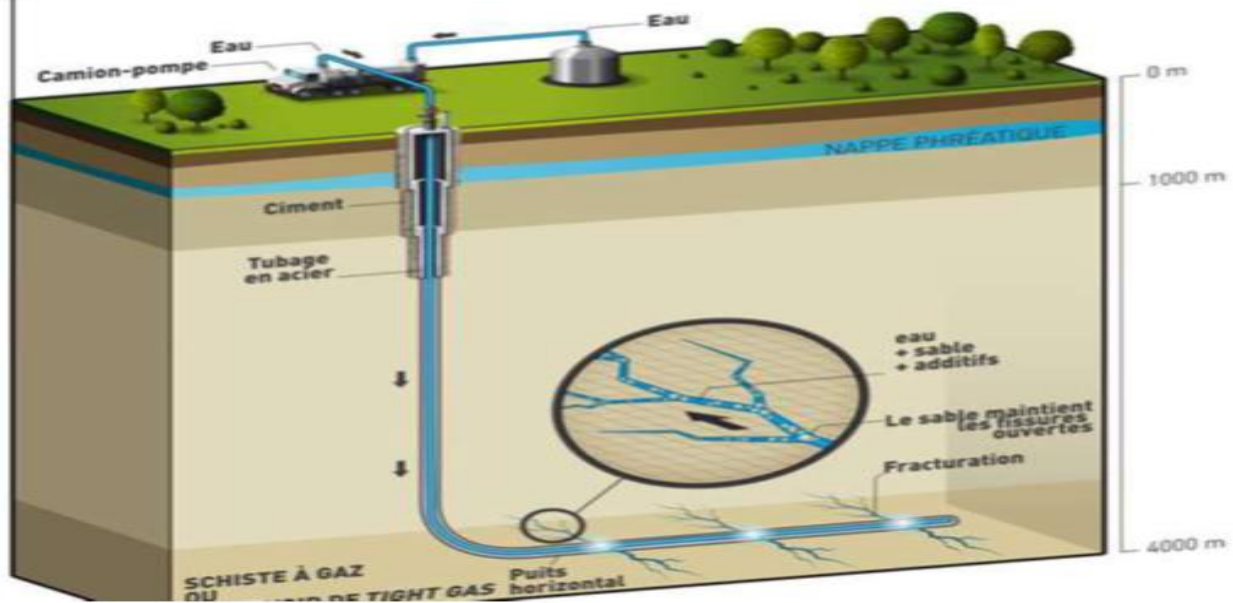
- ▣ It is the natural gas released by the source rock and remained trapped in the rock
- ▣ For this we must bring its migration artificially by means of hydraulic fracturing



WHAT IS HYDRAULIC FRACTURING

It is the fact of injecting water under high pressure in the deep formations to release the gas source rock

FRACTURATION HYDRAULIQUE



WHAT RISKS CAUSED BY HYDRAULIC FRACTURING?

- To Water aquifers
 - To Atmosphere
- To Environnement

RISKS CAUSED TO WATER AQUIFERS

- *Seismicity induced by fracturing
- * Pollution induced by chemical additives to fluid fracturing
- *Use of large quantities of water

RISKS ON THE ATMOSPHERE

Emissions of green house gas:
Methane, ethane, propane, butane

RISKS ON THE ENVIRONMENT

*significant number of very close vertical and horizontal drilling with the rate of 1well/2km

*Many slopes and cuttings piled

*water recovery basins and drilling mud

EXPERIENCE IN THE USA

- About 2 million vertical wells since 2002 and around 12 Million horizontal wells were performed
 - Wide pollution of aquifers
 - Self sufficiency in natural gas
 - Soon Exporter of Gas

ADAPTIVE MEASURES

-That will be considered are:

- 1-Reducing amounts of water used
- 2-sealing the wells to minimize emissions of gases
- 3- Use of treated waste water in hydraulic fracturing
- 4-Development projects for local populations

What is Government Responsibility

Responsibility of Government is great

Government must prepare legislation to monitor the company operates shale gas on his land



Government must draw up an action plan preparing the exploitation of gas shale



Government must make an estimate of its reserves of shale gas

