

## AIM: Nonrenewable Resource #3 : NATURAL GAS

### - Definition:

- hydrocarbon gas mixture of 50-90% methane ( $\text{CH}_4$ )
- Liquefied Petroleum Gas (LPG) - propane, butane

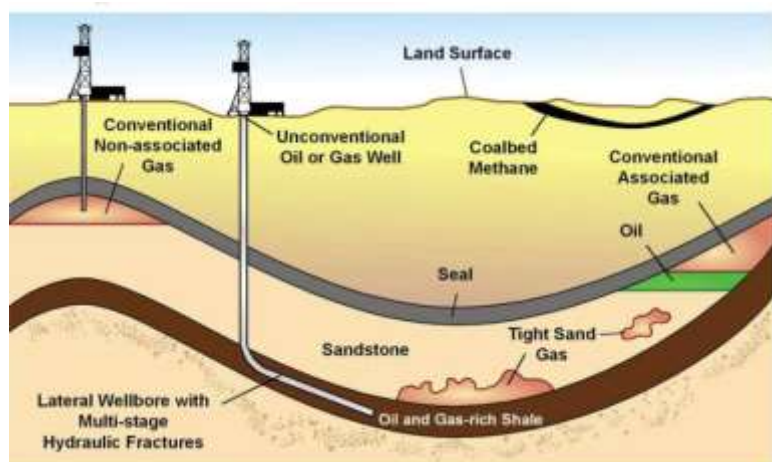
### Extraction:

#### conventional

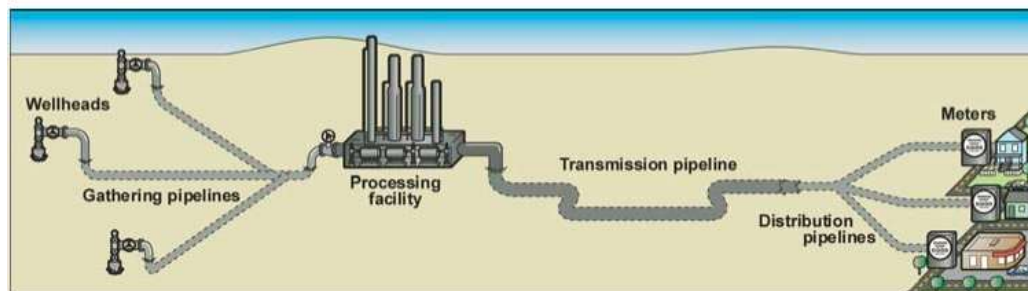
found with oil reservoirs and pumped out the same ways as oil

#### unconventional

hydraulic fracturing ("fracking") of shale or coal beds



#### Pipeline System



Source: PHMSA.

The continental United States has more than 210 pipeline systems that are made up of 490,850 kilometers (305,000 miles) of transmission pipelines that transfer gas to 48 states. This system requires more than 1,400 compressor stations to ensure that the gas continues on its path, 400 underground storage facilities, 11,000 locations to deliver the gas, and 5,000 locations to receive the gas.

## Natural Gas: Most Reserves

1. Russia
2. Iran
3. Qatar

### Pros and Cons of Using Natural Gas:

PROS	CONS	
1. ample supply	1.	methane well and pipeline leaks (CH <sub>4</sub> is a greenhouse gas) and explosions
2. cleanest burning fossil fuel (50% less CO <sub>2</sub> than coal)	2. Negative Effects of Fracking	a. groundwater / air contamination
3. easily transported by pipeline		b. methane / fracking chemicals in drinking water
4. most efficient fossil fuel used in power generation (>45% v coal and oil - 35-40% )		c. extensive. non-recoverable water use
5. <i>Positive Effects of Fracking:</i> lowered natural gas prices		d. can trigger earthquakes