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# The natural gas in North America: USA, Canada, Mexico.

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The disadvantage of natural gas, it's its transport. Two methods exist:

The pipeline; North America has an extensive network of pipelines but it is cut off from the rest of the world by oceans. If natural gas shortage in Canada or the USA, the network is connected neither to Africa nor the Middle East or Russia.

The second solution, the LNG and liquefied natural gas (LNG) to fill the peak demand of industrial, commercial and individuals in winter.

## The natural gas in North America : production and consumption

### A. U.S. production and consumption of natural gas.

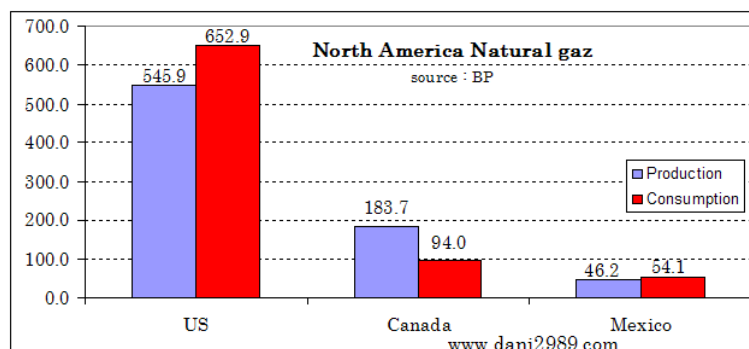
The USA is the largest producer and consumer of natural gas in North America. In 2007, consumption of natural gas was 652.9 billion cubic metres (bcm), or 63.2 billion cubic feet of natural gas (bcf). The gas production was 545.9 billion cubic metres of natural gas (52.8 bcf). The gap between production and consumption was 107 billion bcm in 2007. The missing natural gas is imported via pipeline from Canada and the LNG (Liquefied Natural Gas) of the Caribbean, Africa and the Middle East .

### B. Canada: production and consumption of natural gas.

The situation in Canada is the inverse of USA. The production exceeds consumption. In 2007, gas production was 183.7 billion cubic feet of natural gas for consumption by 94 billion cubic feet of natural gas. Canada is in a surplus of 89.7 billion cubic feet of gas exported to the U.S. by pipeline.

### C. Mexico: production and consumption of natural gas.

Mexico produces 46.2 billion cubic feet of gas (4.5 bcf) for a consumption of 54.1 billion cubic feet of natural gas (5.2 bcf). Mexico, like the U.S.A is deficient in terms of natural gas production versus consumption. Mexico imported 7.9 bcm from USA, USA by pipeline and Africa in the form of LNG

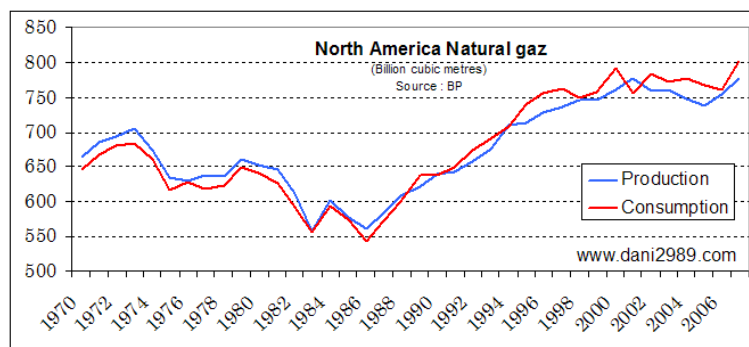


## Evolution of natural gas consumption

With 81% of consumption north america the USA is the largest consumer of natural gas in North America. Their situation is therefore crucial to the balance of natural gas prices (U.S. Henry Hub).

### A. North American consumption of natural gas.

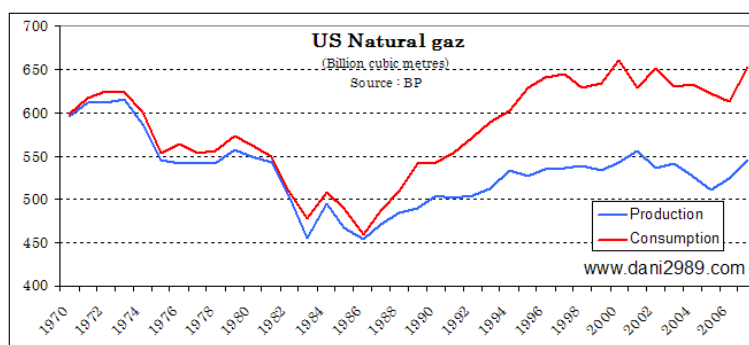
Looking at the chart of production and consumption of natural gas in North America since 1970, we see that consumption was below the production until 1989, then it reversed. Now consumption slightly exceeds production and since 1994 consumption hovers slightly above production.



### B. The U.S. consumption of natural gas.

The graph of the natural gas production in North America situation of the USA since 1987, which increases the gap between production and consumption. The U.S. oil production is finding it increasingly difficult to meet the growing demand. The number of individuals who consume natural gas in the U.S. rose from 47.7 million to 64.3 million from 1987 to 2006.

Despite higher natural gas prices since 2000, the production can not keep up with rising demand.



## Imports of natural gas USA

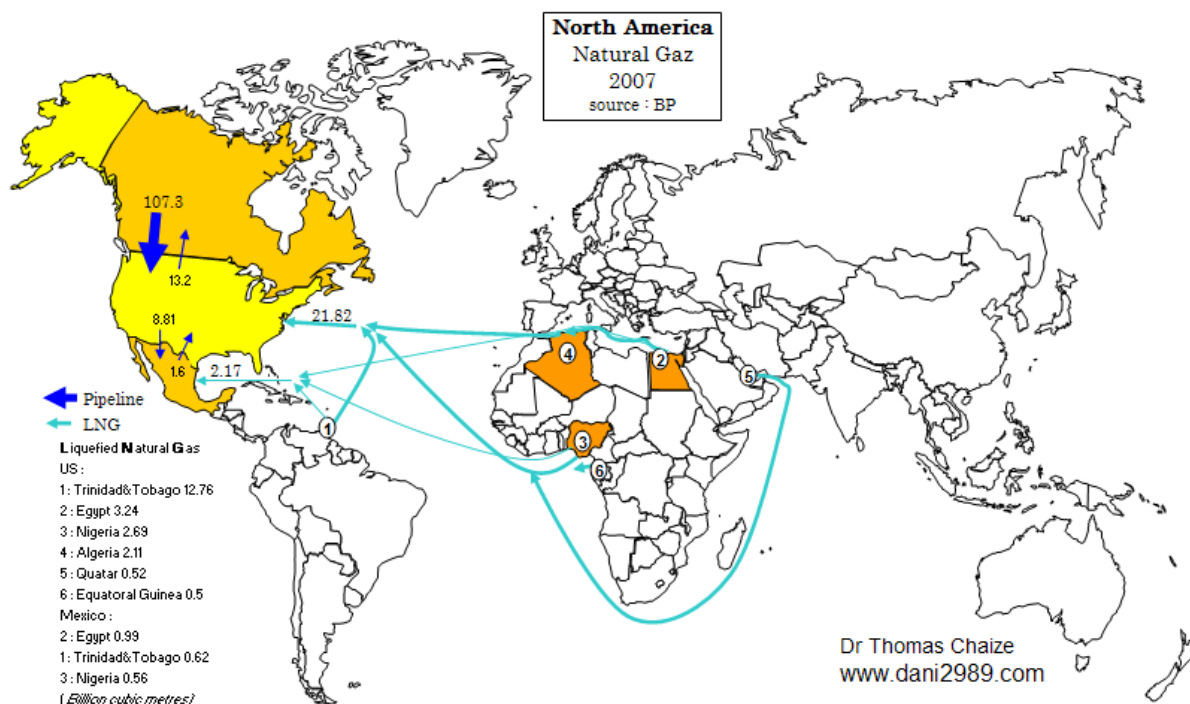
The U.S. bridge the difference between production and consumption with natural gas imports from Canada via pipeline and LNG of the Caribbean, Africa and the Middle East.

### A. Canada :

Even if production in Canada is much lower than that of the United States, it has a crucial role. The Canadian production is three times less important than the USA, but the big difference lies in the fact that Canada consumes unless it produces, this allows him to have a natural gas production and export rest to USA pipeline 107 billion cubic metres of natural gas.

### B. LNG: Africa and Middle East.

To transport natural gas over a long distance in the absence of a pipeline, it is converted to liquid that contains only methane. Unnecessary portions are removed (water, Helium, hydrocarbons). It is then submitted to a high pressure and it is cooled to -163 degrees. This transformation requires large facilities initially for transforming natural gas to LNG, and upon arrival to transform the LNG natural gas. Then a few thousand kilometres are covered in very expensive LNG, this is more complex and more expensive than using pipelines. Despite imports from Canada, U.S. need to import LGN (9.6% Liquefied Natural Gas in the World) by tankers from Africa (2.11 bcm Algeria, Egypt 3.24 bcm, 0.5 bcm Equatorial Guinea and Nigeria 2.69 bcm) Middle East (Qatar 0.52,) and Caribbean (Trinidad & Tobago 12.76 bcm).



The situation is simple: a network of gas pipeline (North America) cut the rest of the world with a big consumer, the USA, which have a lower production to consumption and a neighbour, Canada, which has a natural gas production surplus which meets 15% of natural gas demand U.S. The peak consumption demands during winter are filled by imports of LNG (3.2% of total consumption) to offset the problems of storage of natural gas (limited storage in depleted fields, salt mines and aquifers).

So far, this complicated patchwork of processes has worked.

The production of Canada is smaller than the U.S., its importance is vital. It helps keep the balance between supply and demand in the U.S. (knowing that Mexico now imports more than it exports natural gas). If the natural gas production declines in Canada, even a little, the price of natural gas and imports of LNG experience a fever surge in North America.

For how long can Canada continue to meet the gap between supply and demand for natural gas in the USA, the primary consumer in the world (the U.S. consume ten times more natural gas than China)?

[This is the next topic: natural gas production in Canada.](#)

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