

Pros and Cons of Natural Gas Use

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Natural gas has become very popular during the last few years due to its daily use in our homes. Read this article to discover how extensive the use of gas is and the respective advantages and disadvantages of its use.

Natural Gas and its Uses

Natural gas is mainly composed of methane and a small percentage of other hydrocarbons (e.g. ethane). This simple composition makes natural gas a valuable energy resource and a great asset to the global economy. Its use is becoming more and more popular since it can be used in a variety of sectors (industrial, commercial, residential, electric power generation, transportation, etc.). More specifically:



- **Industry:** It is used to produce a wide range of products such as plastics, paints, and ammonia for fertilizers. The amount of gas consumed in industry is 27% of the total gas consumption (2009 figures*).
- **Residential use:** 21% of the natural gas consumed in the United States is used for powering home appliances.
- **Electric Power Generation:** In the United States alone, almost 30% of natural gas consumption is used to produce electricity.
- **Commercial use:** Commercial buildings consume 14% of the gas in the United States (space heating, water heating, air conditioning, etc.).
- **Transportation:** Natural gas is used to fuel vehicles (cars, trucks, and buses) since it is cleaner and cheaper than gasoline or diesel.

Advantages of Natural Gas Use

Some of the main advantages in using natural gas are listed below:



Economy: Natural gas is cheaper compared to other fossil fuels and cheaper than electricity when used for supplying home appliances. Natural gas appliances are also cheaper compared to electrical ones.

Environment: It does not pollute the ground or the underground water because its byproducts are in gaseous form. Another important fact is that natural gas burns without releasing any soot or sulfur dioxide. It also emits 45% less carbon dioxide than coal and 30% less than oil.

Transportation: Transportation is made via sea (tankers) and land (pipelines and small tanks). This fact allows natural gas to be easily transferred from power plants to residential areas.

Multi-uses: Natural gas is a multi-use fuel. It is used inside the house for cooking, heating, drying, etc. It can be used for generating electric power, powering vehicles (by substituting for diesel and gasoline), producing plastics, paints, fertilizers, and many more uses.

Availability: It is abundant and almost worldwide available.

Conversion to Hydrogen Fuel: It is currently the cheapest fossil fuel source for producing hydrogen.

Disadvantages of Natural Gas Use



Some of the main disadvantages in using natural gas are listed below:

Flammable and Toxic: Natural gas leaks can be proven to be extremely dangerous. Such leaks may be the cause of fire or explosions. The gas itself is extremely toxic when inhaled. The main risk comes from the fact that it is *naturally* odorless and cannot be detected by smell, unless an odorant has been added to the gas mixture. In the case of an underground leak, the odorant may gradually become weaker and the gas may go undetected.

Environmental Impact: When natural gas burns, carbon dioxide, monoxide, and other carbon compounds are emitted in the atmosphere contributing to the greenhouse effect. Although it is cleaner than other fossil fuels (oil, coal, etc.) as far as byproducts are concerned, natural gas leaks can become more hazardous since methane is 21 times more dangerous than carbon dioxide.

Processing: In order to use it as a fuel, all constituents other than methane have to be extracted. The processing results in several byproducts: hydrocarbons (ethane, propane, etc.), sulfur, water vapor, carbon dioxide, and even helium and nitrogen.

Non-Renewable: It is a finite source of energy and cannot be considered a long-term solution to our energy supply problem.

Installation: The whole pipe installation may be very expensive to construct since long pipes, specialized tanks, and separate plumbing systems need to be used. Pipe leakage may also be very expensive to detect and fix.

Efficiency in Transportation: When natural gas is used as a fuel in cars, the mileage is lower than gasoline.

Conversion to Hydrogen Fuel: A drawback in producing hydrogen from natural gas is that efficiency drops to almost 50% compared to the original chemical energy.

A Small Conclusion

Despite the disadvantages, it is remarkable that the entire cycle of producing, processing, transporting and using natural gas provides us with a total energy efficiency of almost 90%. It is by far the best choice among the fossil fuel energy sources from all aspects.

Source:

<http://www.brighthubengineering.com/power-plants/115683-advantages-and-disadvantages-of-coal-for-power-plants/>