Why energy security is important

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Energy security is the association between national security and the availability of natural resources for energy consumption (as opposed to household energy insecurity). Access to cheaper energy has become essential to the functioning of modern economies. However, the uneven distribution of energy supplies among countries has led to significant vulnerabilities. International energy relations have contributed to the globalization of the world leading to energy security and energy vulnerability at the same time.[1]

Renewable resources and significant opportunities for energy efficiency and transitions exist over wide geographical areas, in contrast to other energy sources, which are concentrated in a limited number of countries. Rapid deployment of wind power and solar power and energy efficiency, and technological diversification of energy sources, would result in significant energy security.[2][3]

The impact of the 1973 oil crisis and the emergence of the OPEC cartel was a particular milestone that prompted some countries to increase their energy security. Japan, almost totally dependent on imported oil, steadily introduced the use of natural gas, nuclear power, high-speed mass transit systems, and implemented energy conservation measures.[16] The United Kingdom began exploiting North Sea oil and gas reserves, and became a net exporter of energy into the 2000s.[17]

Increasing energy security is also one of the reasons behind a block on the development of natural gas imports in Sweden. Greater investment in native renewable energy technologies and energy conservation is envisaged instead. India is carrying out a major hunt for domestic oil to decrease its dependency on OPEC, while Iceland is well advanced in its plans to become energy independent by 2050 through deploying 100% renewable energy.[18]

The value of such reserves was demonstrated by the relative lack of disruption caused by the 2007 Russia-Belarus energy dispute, when Russia indirectly cut exports to several countries in the European Union.[23]

Due to the theories in peak oil and need to curb demand, the United States military and Department of Defense had made significant cuts, and have been making a number of attempts to come up with more efficient ways to use oil.[24]

Compared to petroleum, reliance on imported natural gas creates significant short-term vulnerabilities. The gas conflicts between Ukraine and Russia of 2006 and 2009 serve as vivid examples of this.[25] Many European countries saw an immediate drop in supply when Russian gas supplies were halted during the Russia-Ukraine gas dispute in 2006.[26][27]

Natural gas has been a viable source of energy in the world. Consisting of mostly methane, natural gas is

produced using two methods: biogenic and thermogenic. Biogenic gas comes from methanogenic organisms located in marshes and landfills, whereas thermogenic gas comes from the anaerobic decay of organic matter deep under the Earth"s surface. Russia is one of the three current leading country in production of natural gas alongside US and Saudi Arabia.[28]

In the European Union, security of gas supply is protected by Regulation 2017/1938 of 25 October 2017, which concerns "measures to safeguard the security of gas supply" and took the place of the previous regulation 994/2010 on the same subject.[29] EU policy operates on a number of regional groupings, a network of common gas security risk assessments, and a "solidarity mechanism", which would be activated in the event of a significant gas supply crisis.[30]

The proposed UK-EU Trade and Cooperation Agreement "provides for a new set of arrangements for extensive technical cooperation ... particularly with regard to security of supply".[31]

Uranium for nuclear power is mined and enriched in countries including Canada (23% of the world"s total in 2007), Australia (21%), Kazakhstan (16%) and more than 10 other countries. Uranium is mined and fuel is manufactured significantly in advance of need. Nuclear fuel is considered by some to be a relatively reliable power source, being more common in the Earth"s crust than tin, mercury or silver, though a debate over the timing of peak uranium does exist.[32]

Nuclear power is seen as a means to reduce carbon emissions.[33] Although generally considered a viable energy resource, nuclear power remains controversial due to the risks associated with it.[34] Another factor in the debate with nuclear power is the concern from people or companies regarding the location of a nuclear energy plant or the disposal radioactive waste nearby.

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