

A Few Minutes Series

Subject - Environment & DM

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Liquefied Natural Gas and Its Climate Impact

Introduction

- Russia has long been the dominant source and supplier of natural gas to Europe's mass market but the U.S. is looking to challenge Russia by stepping up its imports of U.S. liquefied natural gas (LNG).

Liquefied Natural Gas

- Liquefied natural gas (LNG) is super-cooled to liquid form making it easier and safer to store and transport.
- So, it is natural gas reduced to a liquid state (liquefaction) through intense cooling to around -161 degrees Celsius (-259 Fahrenheit).
- This liquid gas is 600 times smaller than the original volume and is half the weight of water.
- The compressed fossil fuel, which is constituted almost wholly of methane, a potent greenhouse gas can be transported around the world by ship.
- After arriving at its destination, the cargo is regasified in a floating terminal and redistributed through pipelines.
- But despite LNG's export potential, the high cost of liquefaction and producing LNG has limited its market.
- In Germany, the estimated cost of

building floating LNG terminals for imports to substitute Russian gas has doubled, due in part to higher operating and infrastructure costs.

Impacts of LNG on Climate

- The cooling, liquefying and transport processes, as well as the post-transport regasification procedures, also require a lot of energy.
- Between 10-25% of the energy of the gas is lost during the liquefaction process.
- Processing LNG is energy and carbon-intensive so it can create almost 10 times more carbon emissions than piped gas.
- The numerous stages required to take LNG from the wellhead to the market lead to a "very high imported emissions intensity" in comparison to piped gas, whose emissions are limited to upstream and transport and processing.
- Risk of leakage - Methane
- Delay the phase-out of fossil fuels.

Conclusion

- Promoting energy efficiency and renewable power is the sustainable solution to the shortfall in Russian gas.