



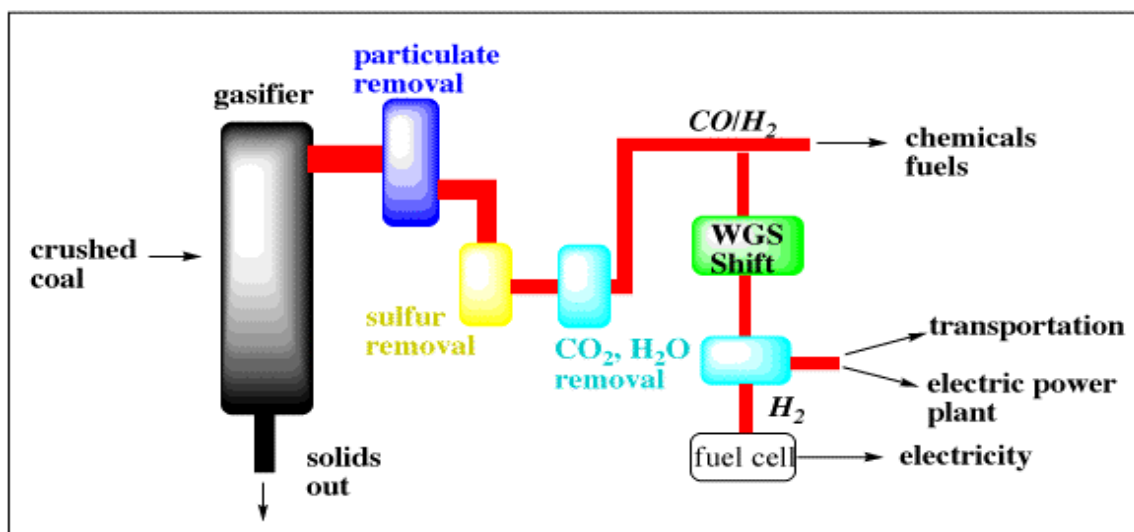
Current Affairs of the Day

Union Budget 2022-23: Why experts disagree with the government's proposal on coal gasification

The Centre's announcement on coal gasification-pilot projects in the Union Budget 2022-23 is contrary to recent research about the process not being attractive from a climate change point of view.

Highlights:

1. Four pilot projects for coal gasification and conversion of coal into chemicals required for the industry will be set up for technical and financial viability, as per Budget 2022-2023.
2. However, coal gasification actually produces more carbon dioxide than a conventional coal-powered thermal power plant.
3. Also, coal gasification plants are costlier than conventional power plants. Since coal is the main feed for gasification, it, in no way helps in India's decarbonisation goals.
4. According to estimates, one unit of electricity generated by burning gasified coal generates 2.5 times more carbon dioxide than what would result when burning the coal directly.





In the gasifier, crushed coal is combined with steam at high pressure and temperature. The quantity of oxygen is limited to prevent the complete combustion of the coal. Instead, the carbon reacts with the steam to form a mixture of CO, H₂, and other gases.



WGS Shift:

The mixture of CO and hydrogen is a burnable gas but combustion of the CO produces carbon dioxide. Treating the mixture with water vapour over a catalyst converts the CO to CO₂ and produces more hydrogen.



Coal gasification is more polluting:

1. Coal gasification is a process in which coal is partially oxidised with air, oxygen, steam or carbon dioxide to form a fuel gas. This gas is then used instead of piped natural gas methane and others for deriving energy.
2. A recent study by the Princeton University in the United States found that using synthetic natural gas for residential cooking and heating, for electricity generation, or for industrial heat generation, results in 10, 40 and 70 per cent more CO₂ emissions than directly burning coal that provides the same amount of energy in each sector.
3. According to a study by Duke University in the US, the syngas process converts a relatively high-quality energy source (coal) to a lower quality state (gas) and consumes a lot of energy in doing so.
4. Thus, the efficiency of conversion is also low. From an environmental perspective, the CO₂ emissions from syngas production are much higher than conventional natural gas and worse than burning coal for power directly.



MAINS DAWP	<p>Q1. “Coal gasification as proposed in budget 2022-2023 is not a viable alternative to the burning of coal”. Elaborate.</p> <p>Q2. Enumerate key budget documents presented by the central government besides the Finance Minister’s Budget Speech.</p>
MCQs	<p>Q1. Which of the following combination is known as Syngas or Synthetic gas?</p> <ol style="list-style-type: none">Carbon Monoxide and HydrogenCarbon dioxide and HydrogenNitrogen and Carbon dioxideNitrogen and Hydrogen