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EDITORIAL ANALYSIS

Gasifying Coal, Greening Doubts: On Energy Security and the Just Transition

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Gasifying Coal, Greening Doubts: On Energy Security and the Just Transition


Down to Earth 21 June 2026 **GS3**

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INTERVIEW ANGLE

"Can coal gasification be reconciled with India's net-zero-2070 commitment, or is it a step backward?"

Source: [Original editorial](#)  [Down to Earth](#)


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WHY THIS MATTERS NOW

India has moved to operationalise its first commercial coal-to-ammonium-nitrate plant under BCGCL, a multi-thousand-crore investment that advances the national Coal Gasification Mission. It is a concrete test of a difficult trade-off: using abundant domestic coal to cut import dependence while honouring a commitment to net-zero emissions (<https://ujjyari.com/terms/net-zero-emissions/>) by 2070.

THE CRUX IN 60 WORDS

Coal gasification turns domestic coal into chemical feedstock (<https://ujjyari.com/vocab/feedstock/>), substituting imports of ammonium nitrate and supporting energy security. But coal-to-chemicals is carbon- and water-intensive, and new coal capital risks stranded assets against net-zero. The honest position is to treat gasification as a bridge, conditioned on CCUS, water efficiency and a just-transition plan, not a licence to deepen coal dependence.

THE ISSUE, DECODED

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ELEMENT	WHAT IT IS	WHY IT MATTERS
Coal Gasification Mission	National push to gasify domestic coal	Frames gasification as self-reliance
BCGCL plant	First commercial coal-to-ammonium-nitrate facility	Substitutes chemical imports
CCUS	Carbon capture, utilisation and storage	Key safeguard for emissions
Just transition	Shift away from coal dependence	Protects coal-region livelihoods

THE ANALYSIS: SELF-RELIANCE AGAINST THE CARBON LEDGER

- 1 The import-substitution case is real.** India imports large volumes of ammonium nitrate and chemicals; gasification adds value to domestic coal and reduces this dependence.
- 2 The climate cost is heavy.** Coal-to-chemicals is carbon-intensive and water-intensive, and life-cycle emissions remain high even if the process is cleaner than combustion.
- 3 Stranded-asset risk looms.** New coal-based capital, with decades-long lifetimes, sits uneasily against a 2070 net-zero target and may need early retirement.
- 4 Transition, not perpetuation, must be the aim.** Gasification can only be defended as a bridge, paired with safeguards and a diversification plan for coal districts.

DATA AND INSTITUTIONS VAULT

Project: *First commercial coal-to-ammonium-nitrate plant, an investment of about Rs 25,016 crore under BCGCL.* **Mission:** *National Coal Gasification Mission, targeting large gasification capacity.* **Climate goal:** *India's net-zero emissions target by 2070.* **Safeguard:** *Carbon capture, utilisation and storage (CCUS).*
Concept: *Just transition for coal-dependent regions.*

THE DEBATE

Argument for: Gasification substitutes imports, adds value to domestic coal, supports energy security (<http://ujjiyari.com/terms/energy-security/>) and can ease the transition for coal-dependent regions.

Argument against: Coal-to-chemicals is carbon- and water-heavy, locks in fossil capital and undermines net-zero credibility.

Balanced verdict: Acceptable only as a safeguarded bridge. Without mandatory CCUS, water norms and a sunset plan, it risks becoming a new lock-in rather than a transition tool.

HOW TO THINK ABOUT THIS (TRANSFERABLE SKILL)

For any fossil-fuel project pitched as self-reliance, run the life-cycle and lock-in test. Ask: what are full life-cycle emissions, and does this asset's lifetime extend past climate deadlines? Self-reliance and decarbonisation (<https://ujjyari.com/vocab/decarbonisation/>) can conflict, and the analytical task is to surface that trade-off, not bury it.

DIAGRAM-IN-WORDS

Domestic coal -> gasification with CCUS -> chemical feedstock minus imports -> bridge to a low-carbon, diversified economy

THE WAY FORWARD

- 1 Mandate (<https://ujjyari.com/vocab/mandate/>) carbon capture, utilisation and storage for coal-gasification projects.
- 2 Enforce strict water-efficiency and emissions-monitoring norms.
- 3 Approve gasification only where it substitutes higher-emission imports.
- 4 Set a clear sunset on new coal-based capital aligned with net-zero 2070.
- 5 Pair every project with a just-transition plan for coal-dependent districts.

THE TAKEAWAY BOX

*Reconciling energy and chemical self-reliance with climate commitments. **Lift line:** "Gasification can serve energy security in the near term, but it cannot become a reason to deepen coal dependence." **Prelims***

hooks: Coal Gasification Mission, CCUS, ammonium nitrate, net-zero 2070, just transition.

Ethics/Interview angle: Intergenerational (<https://ujjyari.com/vocab/intergenerational/>) equity and the duty not to lock in avoidable emissions. **PYQ linkage:** UPSC has asked on India's energy security and the transition to clean energy. **Connects to:** Net-zero pathway, CCUS, import substitution, just transition, water security.

Sources: *Down To Earth* (<https://www.downtoearth.org.in/>), *PIB* (<https://pib.gov.in/>)

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● **KEY ARGUMENTS AT A GLANCE**

Coal gasification advances import substitution and energy security, but its heavy carbon and water footprint must be weighed against India's net-zero path.

✓ **SUPPORTING**

- The case for it is concrete: it substitutes imports of ammonium nitrate and chemicals.
- The Coal Gasification Mission seeks to add value to domestic coal beyond power generation.
- Coal-to-chemicals is carbon- and water-intensive, straining climate and resource goals.

⚠ **COUNTER**

Advocates argue gasification is cleaner than direct burning and supports a just transition for coal-dependent regions.

→ **WAY FORWARD**

Mandate CCUS, water-efficiency and emissions safeguards, and treat gasification as a bridge, not a destination, on the net-zero path.


MAINS ANSWER FRAMEWORK

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QUESTION

Coal gasification promises import substitution but raises climate concerns. Critically examine its place in India's energy-security and just-transition strategy. (250 words)

INTRODUCTION

India's first commercial coal-to-ammonium-nitrate plant, a large investment by BCGCL, advances the Coal Gasification Mission. It sharpens a hard question: how to reconcile energy and chemical self-reliance with climate commitments.

BODY

The economic logic is clear. India imports significant volumes of ammonium nitrate and other chemicals, and coal gasification converts abundant domestic coal into feedstock for these products, substituting imports and adding value beyond power generation.

The Coal Gasification Mission targets a substantial gasification capacity, framing it as a self-reliance project. The climate logic is more troubled.

Coal-to-chemicals is carbon-intensive and water-intensive; gasification may be cleaner than direct combustion at the point of use, but the full life-cycle emissions remain high. For a country committed to net-zero by 2070, locking in new coal-based capital risks stranded assets and a heavier mitigation burden later.

The defensible position treats gasification as a transitional bridge: permissible only with mandatory carbon capture, utilisation and storage, strict water-efficiency norms, and emissions monitoring, and only where it genuinely substitutes higher-emission imports. It should also be paired with a just-transition plan for coal-dependent districts, so that diversification, not perpetuation, is the long-run goal.

CONCLUSION

Gasification can serve energy security in the near term, but it cannot become a reason to deepen coal dependence. Hard safeguards and a clear sunset on coal-based growth are essential.


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