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EDITORIAL ANALYSIS

Hormuz and the Renewable Buffer: How Solar and Wind Absorbed a Fossil Shock

DOWN TO EARTH

15 April 2026 · ENVIRONMENT · ECONOMY · IR · GS3

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Hormuz and the Renewable Buffer: How Solar and Wind Absorbed a Fossil Shock

Down to Earth 15 April 2026 GS3

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INTERVIEW ANGLE

"Global fossil power generation fell 1% year-on-year in March 2026 after the Strait of Hormuz blockade, with renewables expanding to offset the shortfall. Does this episode prove that renewables are now a functional buffer against fossil-fuel supply shocks — and what does it mean for India's energy-security strategy?"

Source: Original editorial ↗ Down to Earth

EDITORIAL SUMMARY

The 2026 Strait of Hormuz disruption produced an unprecedented outcome — global fossil power generation fell 1% year-on-year in March 2026, with renewables expanding to offset the shortfall. Solar and wind capacity additions in 2025 now generate roughly twice the energy previously transported through the disrupted strait. This validates renewables as strategic energy-security infrastructure, though the buffer is incomplete for transport, petrochemicals, and aviation — where hydrogen and EVs remain the long-term answer.

THE SHIFT IN NUMBERS

INDICATOR	2025	MARCH 2026 (POST-HORMUZ)
Global fossil power generation	Baseline	**−1% YoY**
Global solar capacity additions (annualised)	**~330 GW**	Continued expansion
Global wind capacity additions	**~115 GW**	Continued
Global clean-energy investment	**~$2 trillion**	Rising
Global fossil-fuel investment	**~$1 trillion**	Moderating
Strait of Hormuz oil flow (normal)	~20 million bpd	Disrupted 60%+ during peak crisis

THE GLOBAL PICTURE

IEA "Renewables 2025" Key Findings

- Renewables now provide **~35% of global electricity**
- Solar alone: **~7% of global electricity** (doubling every 3-4 years)
- Capacity additions in 2025 broke all prior records
- China leads: **~240 GW** of the 2025 450 GW total
- USA: ~50 GW; EU: ~50 GW; India: ~30 GW

The EU's REPowerEU Maturity

Launched May 2022 post-Ukraine invasion, REPowerEU targeted:

- 45% renewables by 2030 (up from 40%)
- 30 GW North Sea offshore wind by 2030
- Fossil-gas-to-renewables substitution in heating
- 15% cross-border electricity interconnection target

By 2026, implementation has produced:

- EU renewable share at ~48% of generation (ahead of target)
- LNG capacity doubled; but renewables growing faster
- Cross-border trade shielded countries without direct Hormuz exposure

INDIA'S CONTRIBUTION

Current Capacity (end-FY 2025-26)

SEGMENT	CAPACITY
Solar	**~120 GW**
Wind	~48 GW
Hydropower	~47 GW
Nuclear	~8 GW
Other RE (biomass, small hydro)	~11 GW
Total non-fossil	**~234 GW (~48% of installed capacity)**
2030 target	500 GW non-fossil; 50% of energy mix

PM Surya Ghar Muft Bijli Yojana

Launched February 2024, targets:

- **1 crore (10 million) rooftop solar households by March 2027**
- Subsidy: up to ₹78,000 per household for 3 kW systems
- Free 300 units/month for beneficiary households
- Cumulative capacity target: 30 GW rooftop

As of April 2026: ~60 lakh registrations, ~12 lakh installations

National Green Hydrogen Mission

Launched January 2023 with ₹19,744 crore outlay:

- **5 MMT/year green hydrogen target by 2030**
- Strategic Interventions for Green Hydrogen Transition Programme (SIGHT)
- Subsidies for electrolyser manufacturing + green H_2 production
- Pilot projects in refinery feedstock substitution, steel, shipping, long-haul transport

THE INCOMPLETE BUFFER

Transport Gap

- **60% of India's crude oil demand** is for transport fuels (petrol, diesel, ATF, bunker)

- Renewables don't directly substitute — requires EV adoption or synthetic fuels
- India's EV adoption: 7-8% of new car sales; 20%+ for 2W (2024-25 data)
- Heavy transport (trucks, buses) EV transition: 1-2% currently

Petrochemicals and Aviation

- Crude oil feedstock for plastics, chemicals, aviation fuel — no near-term electric substitute
- **Sustainable Aviation Fuel (SAF)** is nascent: <0.5% of current aviation fuel

Reality Check

Even at full 2030 renewable targets, India's crude oil demand would remain significant (~5 mbpd vs current 4.7 mbpd). The Hormuz buffer is real — but only for electricity. Transport and industrial sectors need parallel hydrogen + EV + SAF transitions.

WHAT THE EPISODE PROVES — AND WHAT IT DOESN'T

Proves

1. Renewables can buffer electricity-sector shocks
2. Long-term investment ($2 trillion vs $1 trillion) is shifting toward clean energy
3. Grid interconnection matters for shock absorption
4. Storage technology is improving (batteries, pumped hydro)

Doesn't Prove

1. Full decoupling from fossil fuels
2. Transport/industry shock absorption
3. Price stability for developing economies
4. Energy sovereignty for single-country grid disruptions

INDIA'S STRATEGIC PATH FORWARD

1. **Renewable capacity** — maintain 500 GW by 2030; accelerate transmission infrastructure (Green Energy Corridor Phase II)
2. **Green hydrogen** — meet 5 MMT target; prioritise refinery feedstock + steel + shipping
3. **EV transition** — PLI-ACC batteries + FAME III; target 30% car sales by 2030
4. **SPR expansion** — Phase 2 completion, plan Phase 3 for 45-day equivalent
5. **Supplier diversification** — reduce Hormuz-route dependence via Russia, USA, Brazil, Guyana, Africa

6 **Nuclear expansion** — 100 GW by 2047 (NITI Aayog target)

UPSC RELEVANCE

PAPER	ANGLE
GS2 — IR	West Asia crisis; Strait of Hormuz; US-Iran; REPowerEU
GS3 — Economy	Energy security; CAD management; renewable investment
GS3 — Environment	Climate transition; renewable capacity additions; IEA projections
GS3 — Security	Strategic energy autonomy; SPR; infrastructure resilience
Mains Keywords	Strait of Hormuz, renewables buffer, REPowerEU, PM Surya Ghar, National Green Hydrogen Mission, SPR Phase 2, IEA Renewables 2025, India 500 GW target, Green Energy Corridor

KEY ARGUMENTS AT A GLANCE

The 2026 Hormuz disruption marked a turning point — the first major fossil-fuel supply shock in recent history where renewables actually buffered the shortfall, causing global fossil power generation to decline year-on-year in March 2026. This validates renewables as strategic energy-security infrastructure, not just climate policy.

✓ SUPPORTING

- Global fossil power generation fell 1% YoY in March 2026; solar + wind capacity additions in 2025 (~450 GW globally) now generate roughly twice the power previously transported through the disrupted Strait of Hormuz (~20 million bpd oil equivalent).
- India's own response demonstrates the pattern: solar capacity additions of ~30 GW in FY 2025-26 (highest ever) helped offset crude-oil-linked inflation pressures; new installations in Rajasthan, Gujarat, Karnataka leveraging the PM Surya Ghar Muft Bijli Yojana (2024).
- EU emergency response under REPowerEU (2022) is now maturing: LNG-to-renewables substitution, grid interconnection, and 15-country cross-border renewable trade shielded Europe from the worst price shocks.

- The IEA's 'World Energy Investment 2025' report documented that clean-energy investment surpassed fossil-fuel investment by ~$1 trillion globally for the first time — meaning the Hormuz shock's economic impact was materially moderated.

⚠ COUNTER

Renewables buffer the electricity sector; they do not yet substitute for crude-oil-dependent transport, petrochemicals, and aviation. India's ~90% crude import dependence is not addressed by renewable electricity alone; green hydrogen and EV adoption remain 5-15 year transitions.
Celebrating the Hormuz buffer prematurely could divert attention from the structural oil dependence that persists.

→ WAY FORWARD

Four-pillar strategy for India: (1) Accelerate renewable capacity to 500 GW by 2030 (current ~215 GW end-FY25); (2) Scale green hydrogen (National Mission target 5 MMT/year by 2030) to replace refinery grey hydrogen; (3) EV transition in public transport and fleet segments; (4) Expand SPR Phase 2 and diversify crude sourcing — renewables and strategic reserves are complements, not substitutes.

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✍ MAINS ANSWER FRAMEWORK

QUESTION

The 2026 Strait of Hormuz disruption caused global fossil power generation to decline year-on-year, while renewables expanded to offset the shortfall. Analyse the implications of this episode for India's energy security strategy and renewable capacity targets. (250 words)

INTRODUCTION

The 2026 Strait of Hormuz disruption produced an unprecedented pattern — global fossil power generation fell 1% year-on-year in March 2026, with renewables (solar + wind) expanding to offset the shortfall. This is the first major fossil-fuel supply shock in recent history where renewables have

functioned as strategic buffer rather than just climate policy — validating renewable capacity as energy-security infrastructure.

BODY

The mechanism is now clear. Global renewable capacity additions in 2025 reached ~450 GW (IEA, 'Renewables 2025'), concentrated in solar (330 GW) and wind (115 GW).

Combined, these additions generate roughly twice the energy previously transported through the disrupted Strait of Hormuz (~20 million bpd oil equivalent). **In Europe**, REPowerEU (2022) — the post-Ukraine-invasion energy transition plan — had by 2026 matured: LNG-to-renewables substitution, cross-border grid interconnection, and 15-country renewable electricity trade shielded Europe from the worst price impacts. **In India**, solar capacity additions of ~30 GW in FY 2025-26 (highest ever) helped moderate crude-oil-linked inflation pressures. The PM Surya Ghar Muft Bijli Yojana (2024) — targeting 1 crore rooftop solar installations — accelerated distributed generation.

The IEA's 'World Energy Investment 2025' documented clean-energy investment at ~$2 trillion globally versus fossil-fuel investment at ~$1 trillion for the first time — the $1 trillion divergence is roughly the scale of moderation in oil price shock impact on global GDP. **However**, the buffer is incomplete. Renewables address electricity; they don't yet substitute for crude-oil in transport (60% of crude demand), petrochemicals, and aviation.

India's ~90% crude import dependence isn't solved by solar capacity — green hydrogen (target 5 MMT/year by 2030), EV adoption (currently 7-8% of new car sales), and SPR Phase 2 are necessary complements. The Hormuz episode validates the direction of transition — not its completeness.

CONCLUSION

The Hormuz-renewables episode marks a shift in the global energy security calculus. Renewables are no longer merely a climate policy — they are strategic infrastructure that buffers economies against fossil-fuel supply shocks.

India's path: maintain 500 GW non-fossil capacity target by 2030; scale green hydrogen for refining and transport; accelerate EV transition; and strengthen SPR. Solar, wind, hydrogen, and reserves are complementary pillars of energy security — not competing priorities.

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