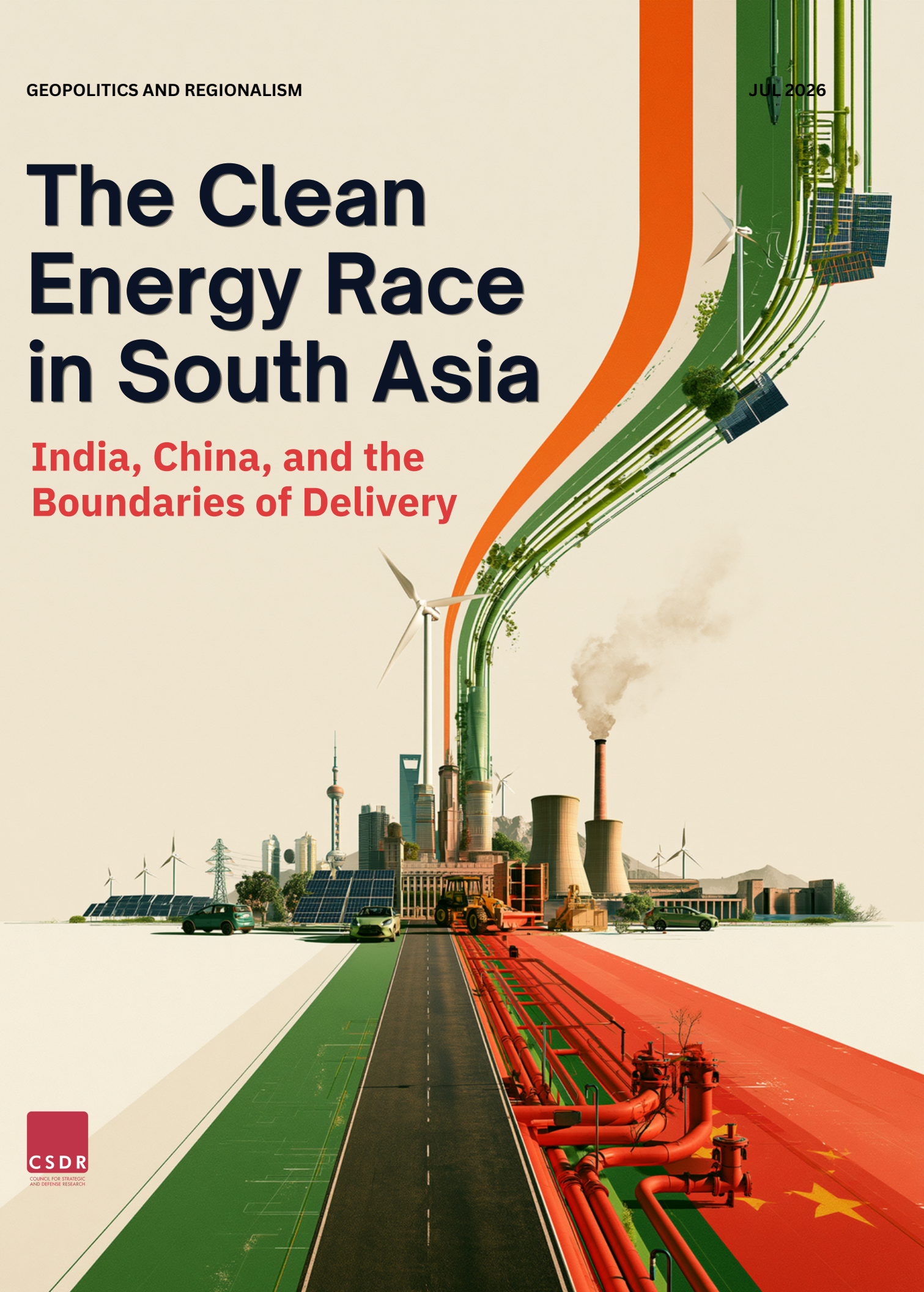


The Clean Energy Race in South Asia

India, China, and the Boundaries of Delivery



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ABOUT THIS REPORT

As India and China compete to power South Asia's energy transition, the decisive factor is not who has more capital. It is who can deliver. This report argues that the two countries' delivery models, not their resources, explain the diverging outcomes across Bhutan, Nepal, and Bangladesh. India's approach is relationship-intensive and conditional, built on sovereign Lines of Credit negotiated case by case. China's is capital-intensive and vertically integrated, with state-owned enterprises controlling financing, engineering, and equipment supply from start to finish.

The consequences are visible across the region. Bhutan remains an anchor of Indian influence. Nepal is a genuine two-way contest, where Chinese brands captured over 80 percent of a booming electric vehicle market before a dramatic tax reversal in 2026. Bangladesh is the central case: through three very different governments since 2024, Dhaka has moved steadily toward Beijing, reassigning projects such as the Mongla economic zone and the Teesta river program after years of Indian inaction. The report shows these losses were execution failures before they were diplomatic ones.

Drawing on verified trade, market, and supply chain data, the analysis also examines the dual-use security risks of connected clean technology, India's near-total dependence on Chinese-processed inputs, and the partnerships with Japan, Australia, and the EU that could ease it. It closes with practical recommendations, sequenced by instrument and time horizon, for closing the delivery gap while the deeper industrial asymmetry is addressed.

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EXECUTIVE SUMMARY

Across South Asia, India and China are pursuing clean energy cooperation through structurally different delivery models, and this difference, more than capital availability or resource endowments, is proving decisive. India's model is relationship-intensive and conditional: financing moves through sovereign Lines of Credit extended by the Export-Import Bank of India, with each project required to clear framework agreements, sovereign guarantees, competitive procurement, and clearances on both sides of the border before construction begins. China's model is capital-intensive and vertically integrated, with state-owned enterprises such as PowerChina holding equity, managing construction, and supplying equipment within a single corporate structure. This report argues that these contrasting architectures account for the diverging outcomes India and China have produced in Bhutan, Nepal, and Bangladesh.

The three cases occupy different points on a spectrum of contestation. Bhutan remains a case of near-exclusive Indian influence, anchored in hydropower exports and reinforced by the November 2025 inauguration of the 1,020 MW Punatsangchhu-II plant alongside a fresh INR 4,000 crore (approximately US\$460 million) Line of Credit. Nepal presents a genuine two-way contest: India retains a deep hydropower pipeline, yet Chinese brands captured over 80 percent of the electric vehicle market, which reached 73 percent of four-wheeler imports in FY2024-25, a lead now unsettled by a sweeping 2026 tax reversal. Bangladesh is the pivot case, having drifted steadily toward Beijing under three successive governments since 2024. The reassignment of the Mongla economic zone and the Teesta project should be read as an execution failure that preceded a diplomatic one; India's delivery pipeline stalled well before the subsequent domestic political shift removed any remaining reason to withhold the opening from China.

Three further questions bear on this delivery-model problem. First, clean technology cannot be treated as neutral hardware. Connected vehicles, smart-grid components, and inverters pose dual-use risks that warrant precautionary measures, notwithstanding the thin evidence to date of actual exploitation. Second, India's own supply chains complicate its pitch to the region; import dependence for battery-grade lithium, cobalt, and nickel is effectively total, and China supplies 84 percent of India's lithium-ion cells in FY26. Political access and supply chain independence are separate achievements, and India cannot presume the former secures the latter. Third, India's clearest opportunities lie in segments neither power has claimed, including public transport electrification, electric boats, and clean cooking fuel, rather than in direct contests where China already holds a structural advantage.

The report closes with recommendations organized by instrument and time horizon. Pre-approved guarantee facilities and blended finance, an audit of Line of Credit disbursement bottlenecks, a critical minerals recycling partnership with Japan alongside Australia and the EU, and a reinvigorated agenda for BIMSTEC and the International Solar Alliance. It does not shy from the trade-off this implies. China's faster model decarbonizes the region more quickly, and a diversification strategy pursued on political and security grounds carries a genuine climate cost. That tension should be acknowledged rather than argued away.

INTRODUCTION

A high-stakes game of chase is underway, and the world is watching closely. India and China are engaged in a dual-purpose clean energy cooperation race with the states of South Asia. The goal of these partnerships is to advance decarbonization on paper while, in practice, serving as tools of regional influence. Both countries have framed their involvement in hydropower, solar, wind, grid infrastructure, and e-mobility as development cooperation.¹ A closer look reveals that both countries also treat their involvement as a vehicle for ensuring long-term political and economic leverage over their smaller neighbors. However, it would be naive to claim that the two countries are pursuing this contest on equal terms; the gap between them is far greater than simply a matter of who has more money to spend. India is burdened by a deeper structural constraint that limits the extent to which its political advantages (whether proximity, shared heritage, language, or cultural familiarity) can exert enduring influence on the ground.

The challenge lies in how each country designs and delivers projects. India's model is relationship-intensive and conditional. Financing, which is typically modeled through sovereign Lines of Credit, and project delivery are linked to diplomatic terms, bilateral trust-building, and case-by-case negotiation rather than a fixed template that can be replicated from one country to the next without fresh rounds of bureaucratic negotiation. On the other hand, China's model is capital-intensive and vertically integrated. State-owned enterprises (SOEs) such as PowerChina and China Three Gorges Corporation (CTG) are responsible for financing, engineering, procurement, and construction (EPC) work, and equipment supply chains, all within a single corporate structure. This minimizes the number of stakeholders who must agree before a project can move forward and significantly reduces the time between signing and commissioning. The difference in approach is not merely cosmetic, as it dictates which projects get built, how swiftly, and who ultimately holds the political credit (or risk) when a dam, transmission line, or solar plant arrives well after it was promised.

This report examines the contrast across three partner states, namely Bhutan, Nepal, and Bangladesh. The countries have been chosen because they share three characteristics that make them valuable case studies. Each is geographically close to both India and China. Each has significant hydropower, grid, or market potential, making them commercially important to both India and China. And finally, each is (to varying degrees) a state in which Indian and Chinese influence is actively contested rather than decided in advance. They present a full spectrum of political contestation, with Bhutan at one extreme of near-exclusive Indian access, Nepal caught in the middle of two courtships, and Bangladesh as the case where the details of the competition have transformed most visibly in recent years, with even more uncertainty lying ahead.

The primary case study is Bangladesh; however, the framing here departs from the common narrative of straightforward Chinese gains to India's detriment. What has changed in Bangladesh since 2024 can be better understood as a shift in what domestic politics allows,

rather than a simple India-loses, China-wins story. The fall of the Awami League government, the interim administration that followed, and the elected government that has since taken the helm have each, in their own way, removed political constraints that had earlier kept Bangladesh's engagement with China in check.² The result, thus, is not that China has outplayed India through superior effort, but rather that the domestic guardrails that had limited Chinese involvement were retracted. To China's credit, it had positioned itself well to take advantage of that opening quickly.

The report proceeds as follows. First, it lays out India's and China's delivery models in detail and explains why India's Lines of Credit mechanism is mechanically slower than China's EPC-based approach, despite the presence of Indian political will. Second, the framework is applied across all three case studies, which examine resilience outcomes, strategic goals, and local perception in each. Thereafter, the report includes two sections not typically discussed in comparative analyses of this kind: one on the dual-use security risks that come with clean-technology penetration, and one that reframes India's opportunities away from head-to-head competition with China and towards market segments where India can add distinct value: public transport fuel mix, electric boats, and cooking gas. The report then turns to India's underlying structural constraint, its dependence on Chinese-dominated upstream supply chains, and potential international partnerships that could help resolve that constraint. It closes with policy recommendations, organized by instrument and time horizon, and a conclusion reiterating the report's central argument.

DELIVERY MODELS

India's Model

India's engagement in South Asian clean energy is structured broadly around sovereign Lines of Credit (LoCs) extended through the Export-Import Bank of India. Disbursement of funds is arranged against specific, negotiated projects. This model of financing is situated within a broader diplomatic relationship, wherein an LoC is not simply a loan offer but a demonstration of political commitment that both governments negotiate alongside other bilateral matters, from border management to water-sharing to even trade access. For implementation, the institutions on the Indian side are primarily public-sector power companies (NTPC, SJVN), and the state-owned power trading company PTC India. Each of these companies has its own project pipeline, procurement rules, and board-level approval processes. NTPC's subsidiary, NTPC Vidyut Vyapar Nigam (NVVN), has been India's nodal agency for cross-border power trade with Nepal, Bhutan, and Bangladesh, while SJVN is responsible for building India's most significant hydropower footprint in Nepal. This includes the 900 MW Arun-III project and the subsequent Arun-IV and Lower Arun developments.³ PTC India, separately, has served as the trade intermediary that buys and sells power across borders once it has been generated, signing agreements with Bhutan's Druk Green Power for seasonal electricity purchases.

India's model of financing in South Asia is situated within a broader diplomatic relationship, wherein an LoC is not simply a loan offer but a demonstration of political commitment that both governments negotiate alongside other bilateral matters, from border management to water-sharing to even trade access.

India's project mix in its neighborhood skews heavily towards hydropower, reflecting not only the natural resource endowments of Nepal and Bhutan but also India's institutional strength in large-dam construction, a legacy developed over decades of domestic hydropower development. The most notable mechanism to emerge from this engagement is the tripartite power agreement that enables Nepal to sell surplus electricity to Bangladesh, with India's transmission infrastructure operating as a transit corridor (first flows, with an initial agreement of up to 40 MW of power, began in November 2024). In June 2026, India's Central Electricity Authority declined approval for an extra 20 MW of power exports from Nepal to Bangladesh, capping the transmission at 40 MW.⁴ The structure depends on India's willingness to permit transit access and captures both the strength and the vulnerability of India's model, as it requires continued diplomatic cooperation among three governments rather than a single commercial transaction.

There is a mechanical reason India's model lags behind China's in practice, and it is worth exploring in detail, as it is often misinterpreted as a mere lack of political will. Typically, an Indian LoC-financed project has to clear numerous procedural layers before ground is broken. A framework agreement must be finalized between governments, along with a project-specific loan agreement, sovereign guarantee requirements from the recipient country's finance ministry, procurement processes that often require competitive bidding even when Indian firms are the intended executors, and requisite environmental and technical clearances on either side of the border. Recipient countries frequently lack the institutional capacity to move quickly on their side of this process, a phenomenon so common it even has a name ("project-readiness gap"). This means that even when New Delhi is fully committed to a project, the disbursement of funds can lag for years.

There is a mechanical reason India's model lags behind China's in practice...Recipient countries frequently lack the institutional capacity to move quickly, a "project-readiness gap".

The Mongla port special economic zone in Bangladesh is a useful, if regrettable, example to drive this point home. India was granted the land in 2015, but its appointed developer, a subsidiary of the Hiranandani group, never began construction. By 2025, the Yunus-led interim government had delisted the project due to inaction, clearing the path for Chinese involvement instead through the state-owned China Civil Engineering Construction Corporation.^{5, 6} This was not an instance of India losing a competitive bid, rather, it was a situation where India's own delivery pipeline stalled long enough that the opportunity slipped through its hands, and fell into the lap of a competitor capable of moving faster at scale.

China's Model

China runs its engagements through a different institutional architecture. Its financing model is backed by state policy banks, mainly the China Development Bank and the Export-Import Bank of China. This is often blended with foreign direct investment and equity stakes acquired directly by state-owned enterprises. The implementing institutions, PowerChina and CTG, play a role far greater than simply lending the money and stepping back; they hold equity, manage engineering and construction, and supply equipment through affiliated manufacturers. This collapses what would otherwise be several separate contractual relationships into a single vertically integrated entity under an Indian-style model.

PowerChina's own corporate reporting claims to have implemented dozens of overseas investment projects across more than a dozen countries, although it is hard to find an independent source confirming these figures. Independent trackers do, however, corroborate the broader pattern even if not the precise numbers; AidData's research spotlights Bangladesh as a Belt and Road hub in South Asia in its analysis of Chinese overseas infrastructure financing, and identifies PowerChina among the state-owned enterprises that have taken a dominant role in Belt and Road investment in recent years.⁷ Nepal's engagement with PowerChina predates the BRI itself; the company's predecessor entities were involved in the Marsyangdi hydropower works in the 1980s, well before the term 'Belt and Road' existed. Notably, Bangladesh and Nepal are among its core Belt and Road markets, and it has been active in the region from even before the turn of the century.⁸

China runs its engagements through a different institutional architecture. Its financing model is backed by state policy banks, mainly the China Development Bank and the Export-Import Bank of China. This is often blended with foreign direct investment and equity stakes acquired directly by state-owned enterprises.

China's project mix shows more variety than India: while solar and wind EPC contracts do dominate, there is also select hydropower work. It reflects the comparative advantage of Chinese firms in solar manufacturing and the greater contestation of hydropower in Nepal and Bhutan, as India holds an entrenched first-mover position. PowerChina built the 64 MW Pabna Solar Park, its flagship solar project in Bangladesh, which began commercial operations in August 2025. It is projected to generate 110 million kWh annually, equivalent to saving 43,000 tonnes of standard coal and cutting CO₂ emissions by roughly 110,000 tonnes a year.⁹ Chinese state-owned firms have also been integral to coal and increasingly renewable capacity additions through the establishment of joint ventures such as the Bangladesh-China Power Company. Because a single corporate structure is handling everything from financing to construction to equipment supply, there are remarkably few independent parties whose approval is required to move the project from the signing stage to the commissioning phase. Moreover, any disputes over cost overruns or delays can be resolved internally rather than pushing for renegotiation between the government and contractor counterparts.

Two models of clean energy delivery

How India's and China's delivery architectures differ across four dimensions

INDIA Relationship-intensive, conditional		CHINA Capital-intensive, vertically integrated
Sovereign Lines of Credit via India's Exim Bank, negotiated project by project	FINANCING	Policy-bank lending (CDB, China Exim) plus equity held by state-owned enterprises
Fragmented across ministries and public firms: NTPC, SJVN, PTC India, separate approvals	CONTROL	One SOE (PowerChina, CTG) handles financing, EPC and equipment supply end to end
Skewed towards hydropower, built on decades of domestic dam-building strength	PROJECT MIX	Solar and wind EPC dominate, with selective hydropower where India is less entrenched
Slower: sovereign guarantees and layered approvals, but deeply politically embedded	DELIVERY SPEED	Faster: few independent sign-offs from signing to commissioning, less local say

The trade-off: deeper negotiation and embedding versus speed and fewer failure points.

Why the distinction matters

The India-China contrast can be summarized along four dimensions that recur throughout this report. First, the financing structure: sovereign LoC versus policy-bank-backed SOE financing. Second, institutional control: one side is fragmented across ministries and implementing agencies, while the other side has it vertically integrated within a single enterprise. Third, the typical project mix: hydropower-skewed versus solar/wind EPC prominence, with selective hydropower. Finally, the fourth dimension of the resulting delivery speed: one side is slower but more politically embedded, while the other is faster but with less local negotiation. It would be reductive to claim that any of these dimensions make one model unambiguously superior.

India's model produces projects that are more deeply negotiated, and on paper, meant to be more responsive to a partner state's specific political needs. China's model delivers projects faster and with fewer points of failure, although at the cost of less local input into how they are to be structured. The following case studies reflect how this trade-off plays out differently, contingent on how contested the political terrain already is.

THE THREE-COUNTRY SPECTRUM

Bhutan: A case of near-exclusive Indian influence

Bhutan is a critical example of near-total Indian dominance in the region's clean energy landscape. When discussing the hydropower partnership between India and Bhutan, it is important not to reduce it to a single sector of the bilateral relationship, but rather to acknowledge it as the anchor around which most of the relationship is structured. Bhutan exports a significant amount of the electricity it generates to India, a figure that saw a historic peak of 81 percent in 2017, and the trade runs in both directions seasonally. During the monsoon season, India buys Bhutanese hydropower when Bhutan's rivers run at full capacity. Meanwhile, during the dry winter months, Bhutan buys back Indian electricity when its own generation drops.¹⁰ India and Bhutan are connected by multiple cross-border transmission interconnections, including 400-kV double-circuit lines for bulk exports.¹¹ Indian firms remain the chief developers of new Bhutanese hydropower capacity, though the mix is shifting: SJVN exited its Kholongchhu joint venture with Druk Green Power in January 2023, and the renamed Khorlochhu project is now being built by Druk Green (60 percent) with the private Indian developer Tata Power (40 percent). Moreover, India's November 2025 bilateral package, which inaugurated the 1,020 MW Punatsangchhu-II plant, announced the resumption of work on the 1,200 MW Punatsangchhu-I hydropower project, and extended a fresh INR 4,000 crore (approximately US\$460 million at the 2025 average exchange rate) Line of Credit, underscores how central this relationship remains to India's regional strategy.^{12, 13}

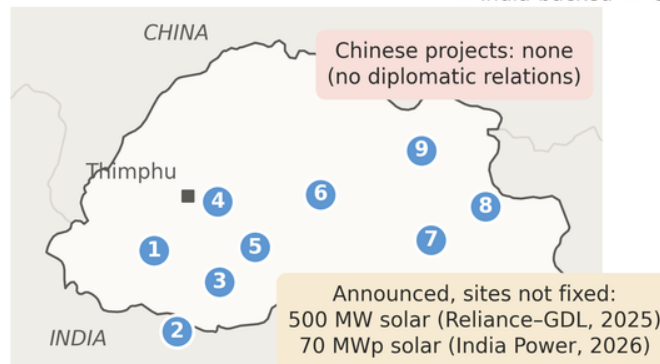
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How this dependency affects resilience can be viewed from two perspectives. On the one hand, the deep integration of the two grids and India's decades-long track record of project delivery gives Bhutan's power sector a kind of stability that is unfamiliar to the region. The framework is well-established, with institutions on both sides knowing how to work together. Any disputes that arise can be resolved through established mechanisms. On the other hand, and this is the more cynical perspective, Bhutan's economy is now unusually exposed to a single revenue stream, with hydropower export earnings reliant on a single buyer, leaving it vulnerable to any shift in Indian demand, pricing, or domestic electrification policy. This is a real concern, since continued expansion of India's domestic grid access and generation capacity could, over time, reduce the relative appeal of Nepali and Bhutanese power imports.

Bhutan: near-exclusive Indian access

Verified India-backed energy projects, mid-2026

● India-backed ● China-backed



- | | |
|--|---|
| 1 Chukha · 336 MW · operating 1988 | 6 Mangdechhu · 720 MW · 2019 |
| 2 Tala · 1,020 MW · operating 2007 | 7 Kurichhu · 60 MW · operating 2002 |
| 3 Wangchhu · 570 MW · Adani · building | 8 Khorlochhu · 600 MW · Tata · building |
| 4 Punatsangchhu-I · 1,200 MW · resumed | 9 Dorjilung · 1,125 MW · World Bank |
| 5 Punatsangchhu-II · 1,020 MW · opened | |

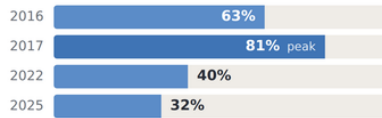
Sources: PMO; DGPC; Tata Power; World Bank. Positions approximate. · 29 Jul 2026

This vulnerability is worth assessing against the report's central claim. The argument that the delivery model, not capital or resource endowments, drives outcomes examines how projects are built, and which country wins the competition to build them. It is not a claim that India's model, once it wins, creates a risk-free relationship. Commercial risk concentration of this kind would exist under any delivery architecture that made Bhutan reliant on a single, geographically fixed buyer. It is a feature of Bhutan's economic structure and India's domestic energy trajectory, not a symptom of India's LoC-based delivery model specifically. Put simply, this dynamic sheds light on a real and distinct vulnerability in the relationship, but it does not undercut the report's argument that India's delivery model has enabled it to establish and maintain this dominant position in the first place. It only demonstrates that winning a market does not eliminate all the risks that come with holding it.

Bhutan: the anchor relationship in numbers

Share of Bhutan's generation exported to India

Percent of total generation, by year



Export share has fallen as domestic demand rises; new capacity due after 2032 is expected to reverse the trend.

Trade reverses seasonally: Bhutan imports Indian power in the dry winter months.

1,020 MW

Punatsangchhu-II
inaugurated Nov 2025

1,200 MW

Punatsangchhu-I
work resumed

INR 4,000 cr

≈US\$460m fresh LoC
(Nov 2025)

600 MW

Khorlochhu: DGPC 60%
+ Tata Power 40%

Sources: Bhutan Energy Outlook; ADB; Embassy of India in Thimphu; PMO; Tata Power. · Verified 28 Jul 2026

Strategically, Bhutan serves as the most visible example of a state where China has effectively had no entry point so far. In the absence of formal diplomatic relations between Bhutan and China, and given the challenge of unresolved boundary questions and India's deeply institutionalized role in Bhutanese security and economic planning, Bhutan rests comfortably outside the competitive dynamic that defines the Nepal and Bangladesh cases. While there are concerns that this may change, current China-Bhutan discussions revolve around boundary settlement under a three-step roadmap. As far as local perspectives go, the hydropower relationship is broadly viewed as a stable and mutually beneficial arrangement, although Bhutanese planners have recently voiced a desire for more domestic value capture from projects rather than operating solely as an electricity exporter.¹⁴

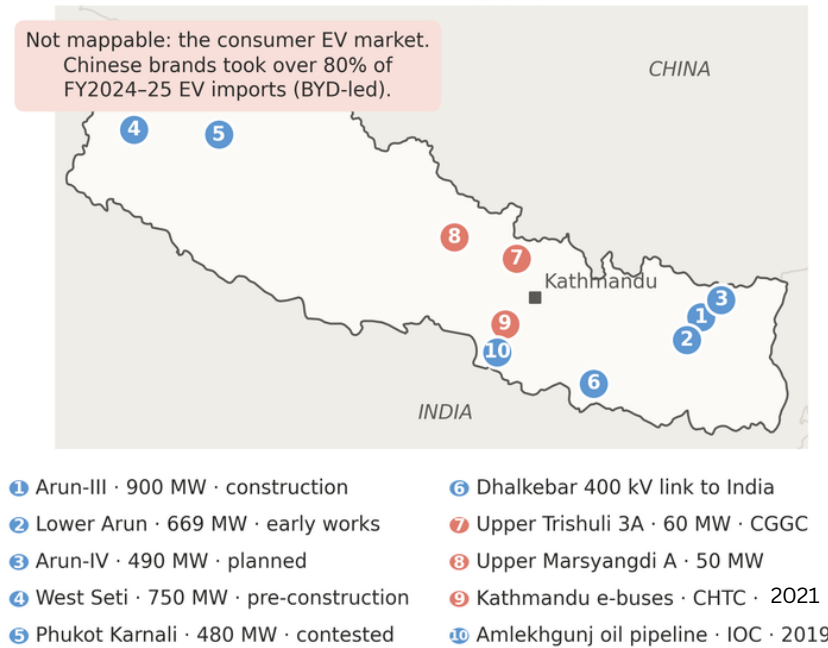
Nepal: A genuine two-way contest

Nepal is an arena where India and China are both actively present and where the outcome is not definitively settled in either direction. On the hydropower front, India holds a substantial lead. SJVN's Arun-III project, the subsequent Arun-IV and Lower Arun developments, and NHPC's involvement in the West Seti and Phukot Karnali projects give Indian public-sector firms a deep pipeline of Nepali generation capacity. Much of it is structured on build-own-operate-transfer terms that also require Indian developers to provide free power and royalty payments to the Nepali government. Interestingly, there has been a tussle over the Phukot Karnali project. Last year, Nepal's Supreme Court directed the government to amend the project's MoU to state that Nepal's share of free electricity would increase in proportion to its investment. The Indian side expressed serious concerns about the project's viability if the order were enforced. Despite the uncertainties, preparatory work for the project has been completed in the Kalikot district.¹⁵

Unlike Bhutan, resilience outcomes in Nepal are more mixed. The country has immense untapped hydropower potential, but chronic political instability. Nepal has had four prime ministers in five years, making it significantly harder for either India or China to confidently secure long-term project pipelines. Transmission-line politics, where competing routes and grid-connection priorities become proxy battles between the two powers, has hindered the advancement of new capacity additions on both sides.

Nepal: a genuine two-way contest

Verified India-backed and China-backed energy projects, mid-2026



Sources: SJVN; NHPC; GEM; Kathmandu Post. Positions approximate. · 29 Jul 2026

Nepal's clean-tech landscape is not uniformly India's to lose, however. In the consumer electric vehicle market, unlike the hydropower sector, China holds a commanding lead that Indian brands have been unable to meaningfully counter. In the fiscal year 2024-25, electric vehicles accounted for nearly three-quarters of all new four-wheeler imports in Nepal. Chinese brands, led by BYD, alongside MG and Leapmotor, have captured over 80 percent of that EV market.¹⁶ Nepal is a useful case study because it applies no differential tariff treatment between Indian and Chinese vehicles. Import duties on EVs were slashed to as low as 15 percent for lower-powered models, applied regardless of country of origin, meaning the outcome reflects product competitiveness rather than trade policy. On that basis, Indian brands have lost decisively on the metric that matters most: overall market share. Indian brands like Tata and Mahindra together hold only a small share of Nepal's EV market, while BYD maintains a near-monopoly position, and no combination of Indian brands is currently positioned to close that gap. The Nepal case demonstrates that when the contest is determined by consumer-facing product quality, rather than by government-to-government project delivery, China's manufacturing base gives it an advantage that Indian diplomacy has been unable to offset.

Nepal's EV surge — and who captured it

Four-wheeler imports, fiscal year 2024-25

All four-wheeler imports

Electric vehicles · 16,701 (73%) Other · 27%

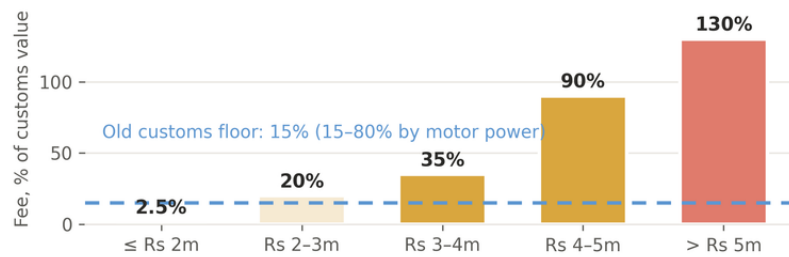
EV imports by brand origin

Chinese brands · 13,338 (80%) All others · 20%

Source: Kathmandu Post, Jul-Aug 2025 (customs data). · Verified 28 Jul 2026

The May 2026 tax shock to Nepal's EV market

"Clean Infrastructure Investment Fee" by customs value, plus a flat 20% duty



Source: Nepal FY2026–27 budget; Fiscal Nepal; Kathmandu Post. · Verified 28 Jul 2026

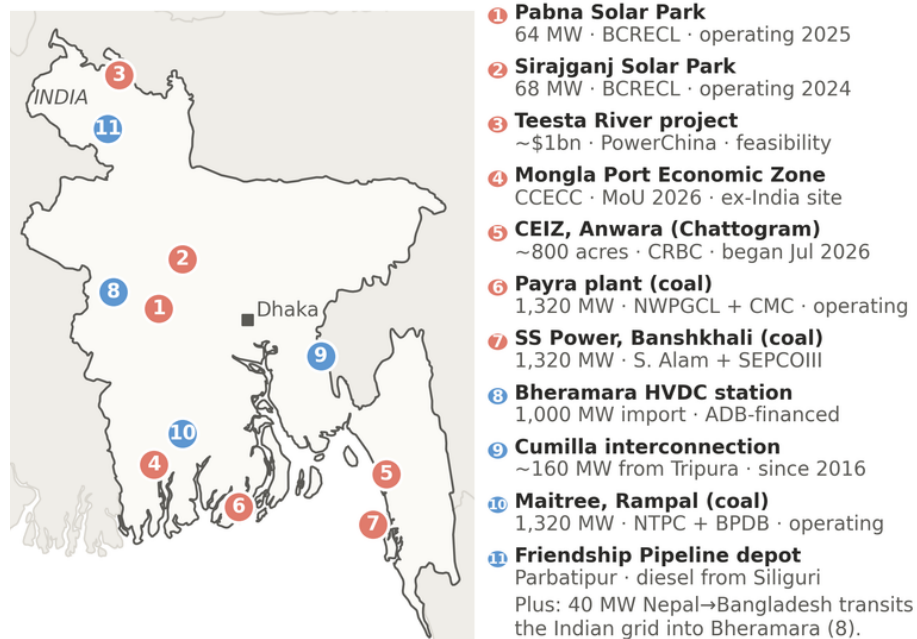
Nepal's political instability should nonetheless caution both India and China against reading too much into any single year's data. In its May 2026 budget, the government of Prime Minister Sushila Karki replaced the old motor-power excise regime with a flat 20 percent customs duty plus a new "Clean Infrastructure Investment Fee" that scales up to 130 percent depending on a vehicle's customs value, a significant tightening from the 15 percent duties in place when China built its dominant market position.¹⁷ Finance Minister Swarnim Wagle has defended the shift explicitly as a trade-off. Nepal spends an estimated \$2 billion a year importing fossil fuels, and the government argues that revenue from EV taxation is needed to fund the grid upgrades that would make a deeper clean energy transition possible in the first place, even at the cost of slowing EV adoption in the meantime. Whatever the merits of that logic, it confirms that competition in Nepal's EV market is not simply a contest between Indian and Chinese manufacturers. Rather, it is contingent on a domestic fiscal policy debate that neither country controls and that can move against the segment even under a government with no particular reason to favor China over India. Local perception, based on available media reportage, remains generally favorable toward the EV transition itself. This is motivated by well-documented urban air quality concerns and pride in Nepal's hydropower-based clean electricity, even as consumers show little brand loyalty to either country and choose primarily based on price and features. But that popular sentiment now sits in tension with a government that is, by its own admission, prioritizing near-term revenue over the pace of the transition, and the resulting price shock could, importers say, meaningfully dent EV sales in the coming fiscal year.

Nepal's clean-tech landscape is not uniformly India's to lose, however. In the consumer electric vehicle market, unlike the hydropower sector, China holds a commanding lead that Indian brands have been unable to meaningfully counter.

Bangladesh: Political guardrails, no single decisive shift

Bangladesh is the report's central case study, and the argument here is that the shift in China's position since 2024 is best explained by changes in what Bangladeshi domestic politics permits, rather than by a singular moment in which China simply outcompeted India. In the last two years, three distinct governments have overseen Bangladesh's China policy. First, the Awami League government under Sheikh Hasina, which was ousted from office in August 2024 after nationwide protests. Then came the interim administration led by Muhammad Yunus, which governed from August 2024 until elections. The elections, held in February 2026, brought the Bangladesh Nationalist Party to power under Prime Minister Tarique Rahman. What is noteworthy is that all three governments, despite their very different political character and sources of legitimacy, have consistently moved towards China.

Bangladesh: the contested centre ● India-backed ● China-backed Verified India- and China-backed energy and infrastructure projects, mid-2026



Sources: BCRECL; BEZA; TBS; GEM; ADB. Positions approximate. · Verified 29 Jul 2026

Under Hasina, Bangladesh already maintained substantial Chinese investment. In fact, China had become one of Bangladesh's largest sources of external financing and even its largest arms supplier.¹⁸ However, Hasina's government kept specific politically sensitive projects, most notably the Teesta River management project, out of Chinese hands. This was done to avoid provoking India, which has long been sensitive to China's infrastructure development near its northeastern border. The guardrail was dismantled almost immediately after Hasina's removal. During his visit to Beijing in March 2025, Yunus secured about \$2.1 billion in loans, investments, and grants, roughly 15 times what Beijing had offered Hasina during her own visit

to China eight months earlier. He also signaled openness to Chinese involvement in the Teesta project, which Hasina had deliberately withheld.¹⁹ The Chinese Economic and Industrial Zone in Chattogram, which began construction recently, has already attracted around \$500 million in potential investment, with the Bangladesh government expecting investment numbers to cross over \$1 billion.^{20, 21} Cumulative Chinese investment commitments in Bangladesh reached close to \$42 billion by the 2024-25 fiscal year.²² The Mongla port special economic zone, discussed above as an example of India's delivery-speed problem, sits within this same story, though with an important distinction. It was not a project Hasina was withholding from China for political reasons; it had simply sat dormant on India's side since the land was granted; no guardrail protected it because none was needed. What Bangladesh's political shift brought about was a change in its patience with India's non-performance.²³ Since neither the interim government nor its elected successor had any lingering investment in the India relationship, they had little reason to keep waiting on a developer that showed no urgency for the better part of a decade. It thus became one of the first major assets formally reassigned to a Chinese developer once the political constraint on deeper Chinese involvement disappeared.

Bangladesh's pivot: three governments, one direction

Key events in the China relationship, 2024–2026



Sources: Al Jazeera; Daily Star; TBS; Joint Communiqué. · Verified 28 Jul 2026

The Bangladesh story is instructive; rather than simply being a case of a caretaker government courting China in times of uncertainty, its trajectory did not reverse when Bangladesh returned to an elected government. Prime Minister Rahman's June 2026 visit to Beijing, one of his first diplomatic visits after his party came to power, produced 17 bilateral instruments (15 memoranda of understanding, 2 agreements) and a joint communiqué.²⁴ Also noteworthy is the two sides' agreement to elevate the relationship, which was already a "comprehensive strategic cooperative partnership" since 2024, toward building a "community with a shared future in the new era," and continued momentum on the Mongla port modernization and the Teesta projects, the same two projects that had pivoted toward China post-Hasina. This continuity across three very different governments suggests that Bangladesh's tilt toward China reflects an element more durable than the preferences of any single administration. It points to a domestic political consensus, driven in part by frustration with India's slower and more conditional delivery record, and in part by the deteriorating India-Bangladesh relations following India's reluctance to extradite Hasina. There is broad agreement that Chinese financing terms and execution speed serve Bangladeshi interests better than the alternative at this point in time.

The projects that moved to China illustrate the guardrails argument directly. The Teesta project moved to China only after India's own competing offer, worth roughly \$1 billion, arrived too late in May 2024. Within months of India's offer, Hasina fell from power and the political constraint that had kept the project out of Chinese hands left with her. The Mongla port special economic zone project, separately, ended up with China only after India had held the land for a decade without commencing construction. In both examples, the underlying reason was not that China outbid India on financial terms, but that India's slower, more procedurally encumbered delivery model left a vacuum, and Bangladesh's domestic political shift removed the last reason not to hand that opening to Beijing.

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The balance between grid diversification and dependency risk can be read both ways. Chinese-financed additions to Bangladesh's power and industrial infrastructure will likely drive near-term capacity growth and could bolster Bangladesh's renewable transition given China's manufacturing strength in solar. This is a transition Bangladesh badly needs, since renewables still supply only about 2.3 percent of its grid and the state power utility recorded a \$4.53 billion revenue shortfall in FY2024-25.²⁵ But the concentration of large-scale, strategically located infrastructure (a port modernization and a river management project both carry dual-use and security significance) in Chinese hands is cause for concern. Moreover, a portfolio negotiated by governments of varying legitimacy within a short and turbulent period flags exactly the kind of dependency risk that the report's next section directly addresses. Local perception in Bangladesh, as gauged by media reporting and social media sentiment, is genuinely mixed. There is a general perception that China is less likely to interfere in domestic politics than India, but concerns about debt terms and the strategic implications of Chinese-controlled port and river infrastructure run across the political spectrum, including within the BNP itself.

The concentration of large-scale, strategically located infrastructure, that carry dual-use and security significance, in Chinese hands is cause for concern.

STRATEGIC AND SECURITY RISK

Despite its name, clean technology is not neutral hardware. Treating it as such greatly understates the security stakes of the India-China competition in South Asia. The starting point for a dual-use framing is clear-cut. Any clean-tech component that includes embedded connectivity, remote software updates, or centralized data reporting to a manufacturer creates a channel that, in theory, can be used for purposes well beyond its stated function.²⁶ But it is worth situating this framing within a wider concept. Infrastructure can function as a tool of strategic coercion not only through what it produces, but through how it is designed and where it sits. Large dual-use infrastructure, such as dams with data-driven flow controls, ports with military-capable berths, transmission corridors that double as chokepoints, can operate as a kind of “hostile architecture” at the state level: assets that appear to serve a purely civilian or commercial purpose but are positioned, or can be repurposed, to constrain a rival state’s strategic options without a single overt act of aggression. Recent analysis of Chinese-built hydropower infrastructure in the Himalayas makes this case explicitly, describing upstream dam projects with remote data and flow-control capability as instruments that can be leveraged to pressure downstream states such as India during a crisis, well short of any conventional military action.²⁷ Read this way, a Mongla port modernization or a Teesta river-management project moving into Chinese hands is not simply a commercial or even a debt-sustainability question; it is a question of whether physical infrastructure with civilian branding is also being positioned as leverage.

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Chinese-manufactured EVs are the most straightforward example because they combine the features that heighten risk: high market penetration in politically sensitive border states like Nepal, continuous data transmission for functions like navigation, telematics, and over-the-air software updates, and a legal environment in China that can compel domestic firms to cooperate with state intelligence requests. A vehicle fleet with this profile, operating along the length of a country that borders both India and China, is a plausible vector for location tracking, communications interception, or simply a large, continuously updated dataset on the movement

patterns of a foreign population, all without any single incident that would look like conventional espionage.

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This is also the point in the argument that deserves the most direct scrutiny, because the obvious rejoinder is fair. If the risk arises from embedded connectivity and remote data access, why would that risk be specific to Chinese hardware rather than to any internet-connected vehicle, regardless of where it is made? On the available evidence, the honest answer is that the risk is not unique to Chinese manufacturers in kind, but it differs in two respects. First, legal exposure. China's National Intelligence Law obliges domestic organisations, including private firms, to support state intelligence work on request, creating a compulsion mechanism that does not have a direct equivalent for Indian manufacturers operating under India's current regulatory framework, though India's own data-governance regime is still maturing, and this report does not claim Indian firms are immune from being compelled to share data under different legal pressures of their own. Second, and more importantly, the evidence for actual large-scale exploitation of connected-vehicle data by Chinese state actors remains thin even in jurisdictions that have studied the question closely. European regulators investigating the same concern have found it genuinely unclear how such data would reach Beijing in practice, or whether doing so would be operationally worthwhile.²⁸ The defensible position, then, is that this is a plausible and structurally real risk category that merits precautionary treatment (security vetting of connected components, data-localization requirements, restrictions on which servers vehicle telematics can report to) rather than a demonstrated pattern of ongoing abuse. Indian policy proposals along these lines, including calls to expand India's own sovereign cloud infrastructure and set explicit security thresholds for foreign-supplied EV components, are best read as prudent hedging against a risk that is credible but not yet proven, not as a settled indictment of Chinese hardware specifically.²⁹

The same logic extends to other clean-tech categories that receive far less public attention than EVs but carry comparable exposure. Smart-grid components (the sensors, controllers, and communication modules that manage load balancing and grid stability) rely on firmware and software supplied by a small number of manufacturers, several of them Chinese, and a compromised or remotely disabled smart-grid component is a more consequential single point of failure than almost any other category of infrastructure, since it can affect an entire regional grid rather than a single facility. Battery management systems in grid-scale storage and inverters used in solar installations carry the same structural risk. Both are software-governed, frequently connected to the internet for remote monitoring and diagnostics, and dominated by Chinese suppliers given China's manufacturing scale in these categories.³⁰ Beyond hardware, three further risk categories deserve explicit naming. The first is workforce dependency. Large Chinese-financed projects are frequently staffed and maintained by Chinese technical personnel embedded within recipient-country critical infrastructure for years at a time, raising questions about physical access that are distinct from the software questions above. The second is debt-linked strategic leverage. Where Chinese-financed infrastructure carries repayment terms recipient governments struggle to meet, the risk is not hypothetical espionage but a negotiated loss of control over the underlying asset, on the model widely associated with (but contested in the case of) Sri Lanka's Hambantota port. The third is data-center and cloud dependency, an upstream layer that governs where the data generated by all of the above ultimately lives and who can access it, and one that receives markedly less policy attention in South Asia than hardware procurement does.



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None of this means every Chinese-supplied component is compromised, or that India's own domestic tech base is free of comparable vulnerabilities. It means that as clean-tech penetration deepens across South Asia's power and transport systems, the security review process that governments apply to conventional defense and telecom procurement needs to extend to a category of civilian infrastructure that has not historically received the same scrutiny, simply because it was not seen as security-relevant a decade ago.

BEYOND HYDROPOWER: ALTERNATIVE MOBILITY AND FUELS

The question that has typically guided Indian policy discussions (how can India displace China in the same markets China already dominates) is the wrong one, at least in the near term. China holds a structural head start in solar manufacturing and in consumer EVs that is unlikely to close within a policy-relevant time horizon. India's own solar export growth under its Production-Linked Incentive (PLI) scheme has been real but partial, with only about 31 GW of a targeted 65 GW of module capacity actually commissioned, and upstream integration into cells, wafers, and polysilicon remaining shallow.³¹ A more useful question is where India can add distinct value in adjacent categories that neither country has yet claimed. Figure below summarizes this argument visually. Across the six market segments this report examines, only one (utility-scale hydropower) is currently India-led, two are China-led, one is genuinely contested, and two remain effectively open.

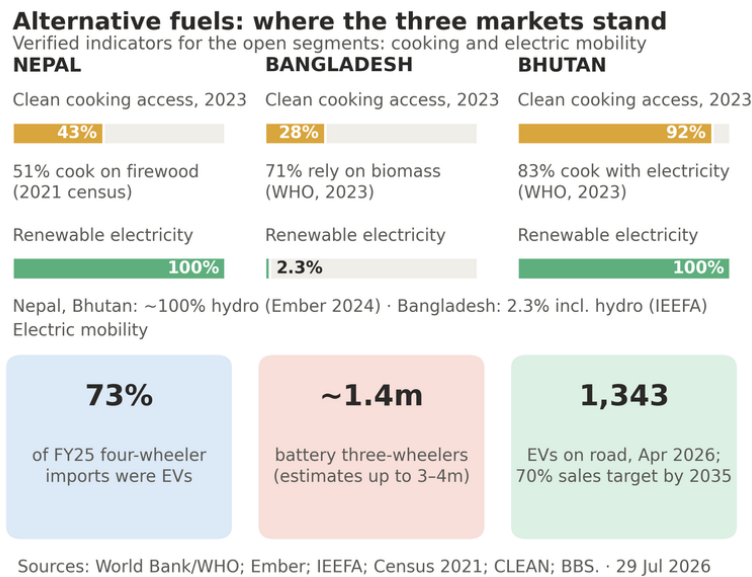
Where India and China stand, by clean-tech segment

Author's classification from the case studies — status, not market size

Utility-scale hydropower	INDIA-LED	entrenched pipeline in Bhutan, Nepal
Solar and wind EPC	CHINA-LED	manufacturing scale and EPC speed
Consumer EVs	CHINA-LED	BYD-led; over 80% of Nepal EV imports
Public bus electrification	CONTESTED	China moving first; no dominance yet
Water transport (e-boats)	OPEN	no major programme by either country
Household cooking fuel	OPEN	no strategic priority by either country

The most immediate opportunity lies in public transport fuel mix rather than private EV uptake. Consumer EV sales figures, however dramatic in Nepal, obscure the fact that most people in Bhutan, Nepal, and Bangladesh do not travel by private car; they rely on buses, minibuses, and shared transport that remain overwhelmingly fossil-fueled. This is not a marginal point. Regional energy analysis shows that while solar growth has meaningfully cut fuel imports for South Asia's power sector, the region remains heavily reliant on imported oil and gas for transport and industry specifically, and closing that gap requires electrification of exactly the fleet-scale, publicly operated transport that this section is concerned with.³² Electrifying this segment requires a different kind of investment than the one China has made in Nepal's consumer EV market (fleet-scale procurement, charging depots, and financing structures suited to public operators rather than individual consumers) and it is a segment where China has begun to move (Kathmandu's state-backed bus operator already runs Chinese-built electric buses, with more arriving under a government-to-government agreement) but has not yet established the dominance it holds in the passenger car market. India's own experience electrifying public bus

fleets domestically gives it a plausible starting point to compete for this business on its own terms rather than trying to match Chinese consumer EV pricing directly.



A second opportunity lies outside the standard EV-and-solar narrative altogether: electric boats. Bangladesh's extensive river transport network and Bhutan and Nepal's more limited but still meaningful use of water transport represent a mobility segment that neither India nor China has prioritized, and one where electrification could deliver meaningful emissions reductions in a category largely absent from current clean-tech competition. Cooking gas is a third, still more underexplored area. Household and small-commercial cooking fuel use across the three states remains dominated by biomass and LPG, and neither India nor China has treated this as a strategic priority sector in the way both have treated grid-scale power generation, even though cooking fuel transitions carry direct public health and household economic benefits that are arguably more immediately felt by ordinary households than utility-scale solar capacity additions. The evidence base for both categories is admittedly thin: unlike hydropower, EVs, or grid-scale solar, neither electric boats nor clean cooking fuel in Bhutan, Nepal, or Bangladesh has generated the kind of granular market data this report has been able to draw on elsewhere. That data gap is itself informative. It is a sign that both segments remain genuinely open, in the sense captured in figure above, rather than merely under-marketed.

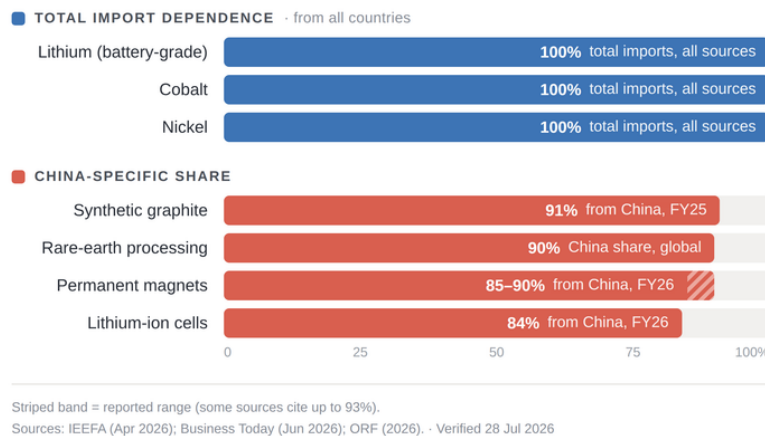
The purpose of identifying these categories is not to suggest India can win a larger competition through smaller victories. It is to argue that India's clean energy strategy in South Asia should stop being organized primarily around matching China category for category, a contest India is currently losing in the segments where China has already built manufacturing scale, and instead identify where India's comparative advantages in fleet electrification experience, proximity, and public-sector financing familiarity can produce real outcomes without requiring India to first solve its underlying cost and technology gap with Chinese manufacturers.

INDIA'S STRUCTURAL CONSTRAINT

Even where India wins politically (securing a hydropower concession in Nepal, maintaining its dominant position in Bhutan), it has not resolved a deeper problem. India's own solar, wind, and battery supply chains rely on inputs dominated by Chinese manufacturing. India's import dependence for battery-grade lithium, alongside 91 percent reliance on China for synthetic graphite, is cause for concern.³³ Downstream, the picture is little better. In FY26, China supplied over 84 percent of India's lithium-ion battery cells and 85-90 percent of its permanent magnets, and China continues to process nearly 90 percent of the world's rare earths.³⁴ Figure below sets out this dependence category by category.

India's clean-tech inputs: two kinds of dependence

Import dependence from all sources vs. the share supplied or processed by China



This means that even a solar panel or battery pack assembled in India, and marketed as an Indian alternative to Chinese supply, is very likely to contain Chinese-processed inputs somewhere in its production chain. This dependency undercuts India's pitch to South Asian partners as a genuine alternative to Chinese clean-tech supply, because the alternative India is offering is, at the input level, not fully separate from the supplier it is meant to displace.

This is worth stating precisely, because the distinction between shallow and deep decoupling is often collapsed in policy discussion. Shallow decoupling means diversifying final assembly, building the panel, battery pack, or turbine outside China, while continuing to rely on Chinese-processed raw and intermediate inputs. Deep decoupling means building independent capacity across the full input chain, from raw material extraction or recycling through refining, processing, and component manufacture, so that the finished product does not depend on Chinese-controlled processing at any stage. India's current industrial policy, including its production-linked incentive schemes for solar manufacturing, has made real but partial progress on shallow decoupling. As noted above, only about 31 GW of a targeted 65 GW of module capacity has actually been commissioned. Much less progress has been made on deep decoupling, because the refining and processing capacity that sits upstream of assembly

requires capital intensity, technical expertise, and years of lead time that shallow assembly incentives do not by themselves generate. The same pattern is visible in batteries. India's battery demand is projected to reach 272 GWh by FY2030, but its PLI scheme for cells has fallen short of targets, leaving the country structurally exposed at exactly the point in the supply chain (cell and component manufacturing) where genuine self-reliance must be built.³⁵

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This is precisely where the Bhutan and Nepal cases loop back into the argument. India's political success in both countries (its entrenched position in Bhutanese hydropower, its still-substantial hydropower pipeline in Nepal) does nothing to resolve the fact that any other solar or battery component India might supply to those same countries as part of a broader clean energy partnership still carries the same upstream exposure to Chinese processing. Political access and supply chain independence are separate variables, and conflating them overstates the extent of the durable strategic advantage India has actually secured through its diplomatic wins. China's own trade posture reinforces the point. In December 2025, Beijing filed a WTO complaint against India's solar subsidies and technology tariffs, arguing that they constitute prohibited import-substitution measures. This is its second such case against India after an earlier challenge to EV and battery subsidies, a reminder that China is prepared to contest India's shallow-decoupling efforts through trade law even as it continues to supply the upstream inputs those efforts depend on.³⁶

Shallow decoupling: real but partial

Solar PLI: module capacity commissioned



48% of target as of June 2025; upstream cells, wafers, polysilicon remain shallow

272 GWh

Projected battery demand by FY2030 (36.5% CAGR)

Cell PLI is behind target

Sources: JMK Research & IEEFA (Dec 2025); IEEFA (May 2026). · Verified 28 Jul 2026

One concrete pathway toward deeper decoupling that India could pursue through partnership, rather than attempting to replicate it alone, is the “urban mining” model Japan has developed to extract critical minerals from discarded electronics. Japan’s urban mining programs recover materials such as neodymium and dysprosium from end-of-life electronics and EV motors, using processes that have demonstrated recovery rates above 90 percent for some rare earth elements in pilot-scale trials.^{37,38} Japan has already begun internationalizing elements of this model with Southeast Asian partners. In 2023, Tokyo provided technological and legal support to Indonesia, Malaysia, the Philippines, Thailand, and Vietnam to build their own electronic-waste collection and disassembly capacity for critical mineral extraction.³⁹ India generates a substantial volume of e-waste domestically, and its electronics industry is large and growing, which gives it a raw material base that Japan’s more mature but more input-constrained recycling technology could help process. A partnership along these lines would not resolve India’s upstream dependency on its own, but it represents a more realistic near-term contribution to deep decoupling than attempting to build independent rare-earth refining capacity domestically from scratch.

INTERNATIONAL PARTNERSHIPS

India’s structural constraint cannot be resolved through domestic policy alone, which makes the question of international partnerships a direct extension of the previous section’s argument rather than a separate topic. Three partners merit particular attention: Japan and the wider East Asian bloc, Australia, and the European Union, each of which can realistically contribute something different.

Three partners, three different contributions

What each partnership offers India’s deep-decoupling effort — and where it strains

	THE OFFER	THE MECHANISM	THE FRICTION
Japan & Northeast Asia	Urban-mining tech; resilience know-how since the 2010 shock	E-waste recovery partnership; energy-security dialogue	Cautious capital; stricter project-prep standards
Australia	Raw critical-mineral reserves: lithium, battery inputs	Offtake and investment agreements	Processing capacity stays a separate, harder problem
European Union	Co-financing; grid and certification standards	Standards alignment; blended finance	Regulatory expertise cannot fix upstream mineral dependence

Japan’s contribution is most directly relevant to the upstream supply chain problem discussed above. Its urban mining and critical minerals recycling technology, its deep experience managing supply chain dependence on China following the 2010 rare-earth export disruption,

and its existing bilateral mechanism with India on energy security give it both the technical capability and the strategic motivation to deepen cooperation. More broadly, Japan and other Northeast Asian states have concrete reasons of their own to help India build capacity that reduces Chinese leverage in South Asia, since a South Asia more dependent on Chinese clean-tech supply chains and infrastructure has knock-on implications for the wider Indo-Pacific balance that Japan, in particular, already treats as a strategic priority. Where Indian and Japanese interests diverge is in risk appetite and pace. Japanese firms and financing institutions tend to move more cautiously and demand more rigorous project preparation than India's own institutions currently require, which could create friction if India expects Japanese partnership to simply substitute for its existing LoC-based approach rather than requiring India to raise its own project-readiness standards.

India's structural constraint cannot be resolved through domestic policy alone, which makes the question of international partnerships a direct extension of its strategy.

Australia's most plausible contribution is in critical minerals themselves: Australia holds substantial reserves of lithium and other battery inputs, offering India a potential alternative source of raw material even if processing capacity remains a separate and harder problem to solve. The European Union's contribution is more likely to take the form of co-financing and technical standards, particularly in grid interconnection and renewable energy certification, areas where EU institutions have accumulated substantial regulatory expertise that could help standardize the integration of cross-border power trade by South Asian states.



Beyond bilateral partnerships, India has two existing regional and cross-regional mechanisms it has underused. BIMSTEC already exists as a forum that includes Bangladesh, Bhutan, and Nepal, alongside India, and could be pushed to do considerably more on energy grid integration

and coordinated clean-tech standards than it currently does, something that matters given that cross-border electricity trade within the BBIN subregion, while it nearly tripled to roughly 21 TWh by 2024, remains well below its potential and continues to face persistent infrastructure and investment gaps.⁴⁰ The International Solar Alliance (ISA), which India co-founded and hosts, offers a different kind of lever. Rather than a project-financing vehicle, it could function as a norm-setting, charter-level platform where India works to establish solar quality, security, and interoperability standards that Chinese suppliers would also have to meet to access ISA member markets. The compliance incentive here is aggregation; no member state's market is large enough to force Chinese suppliers to adapt, but a shared ISA certification standard tied to pooled procurement or public tenders across 120-plus member countries would be. Non-compliance would therefore result in a meaningful loss of market access rather than a symbolic gesture. This would allow India to shape the terms of clean-tech deployment even in categories where India cannot yet compete on price or manufacturing scale.

POLICY RECOMMENDATIONS

Recommendations are organized across four areas, namely financing instruments, delivery speed and project execution, supply chain strategy, and regional diplomacy, and across three time horizons.

Financing instruments

To begin with, India should create a standing, pre-approved sovereign guarantee facility for a defined set of priority sectors (cross-border transmission lines, grid-scale battery storage, and public bus electrification) so that recipient-country project readiness, rather than a fresh round of guarantee negotiation, becomes the binding constraint on disbursement speed. In the medium term, India should pilot blended finance structures that combine concessional LoC lending with private-sector co-investment, reducing the degree to which every project depends entirely on sovereign-to-sovereign negotiation. In the long term, India should work with Japan and the EU to establish a dedicated co-financing facility for South Asian grid and storage infrastructure that can operate independently of any single bilateral relationship, insulating project financing from the kind of domestic political volatility that has affected Bangladesh and Nepal in recent years.

Delivery speed and project execution

In the short term, India should conduct a full institutional audit of its LoC disbursement pipeline in Nepal and Bangladesh, specifically identifying which procedural layers are most responsible for delays and which of those layers India can unilaterally simplify. In the medium term, India should consider granting greater project-execution autonomy to NTPC, SJVN, and PTC India, reducing the number of ministry-level approvals required for project modifications once a framework agreement is signed. In the long term, India should study whether a more limited version of China's vertically integrated model, bundling financing, EPC, and equipment supply

within a single Indian public-sector consortium for defined project categories, could be adopted without abandoning the case-by-case diplomatic engagement that remains India's genuine comparative advantage in politically sensitive projects.

Supply chain strategy

India can explore expanding its e-waste collection and processing infrastructure specifically to support a critical-minerals recycling partnership with Japan, prioritizing the input categories (rare-earth magnets, battery-grade lithium) most relevant to solar and EV manufacturing. In the medium term, India should set explicit, publicly available targets for the share of its solar and battery supply chains sourced from non-Chinese-processed inputs, clearly distinguishing between assembly-level and processing-level sourcing to avoid shallow decoupling being mistaken for deep decoupling in public reporting. In the long term, India should pursue joint refining and processing capacity with Australia and Japan for specific mineral categories where India already has access to reserves or recycling volumes, rather than attempting to build standalone domestic refining capacity across all categories simultaneously.

Regional diplomacy

As an early measure, India should invest in making BIMSTEC's energy cooperation track operationally meaningful through a standing technical secretariat with dedicated funding, rather than continuing to treat it as a symbolic complement to bilateral engagement. In the medium term, India should use its position as ISA host to establish clean-tech security and interoperability standards that raise the bar for all suppliers operating in ISA member states, a lever that does not require India to out-compete China on price. In the long term, India should treat Bangladesh's post-2024 trajectory as a preview of what happens elsewhere in the region if India's delivery model does not improve. The loss of Mongla and Teesta was not primarily a diplomatic failure, but an execution failure, and the same dynamic could recur in Nepal or elsewhere in South Asia if India does not close its delivery-speed gap with China.

A final point deserves direct treatment rather than being assumed away. There is a real climate-effectiveness trade-off embedded in this entire discussion. Illustratively, a Bangladesh-China joint venture broke ground on a 68 MW solar plant on the Jamuna River in January 2023 and commissioned it and delivered power within about 18 months.⁴¹ This is a pace that Indian LoC-financed infrastructure in Bangladesh has struggled to match, where repeated bid disputes and disbursement delays have stretched project timelines well beyond initial schedules. This is not a like-for-like comparison of two solar projects, and Chinese EPC contractors have their own well-documented record of delay in Bangladesh's coal sector, so the claim here is necessarily about a general tendency, not a precise multiplier. If India's relationship-intensive model remains structurally slower than China's capital-intensive one, then prioritizing India as South Asia's preferred clean energy partner, for the political and security reasons this report has laid out, carries a real cost to the pace at which the region actually decarbonizes. This is not a trade-off that can be argued away by asserting that India's model is simply better. Instead, it presents a genuine tension between speed of emissions reduction and the political, security, and supply-

chain considerations that make an India-led or India-diversified approach preferable on other grounds. Policymakers weighing India's role in the region's clean energy transition should be explicit about accepting this trade-off rather than denying it exists.

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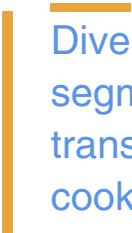
CONCLUSION

The central asymmetry this report has described is that China is converting industrial capacity into regional influence faster than India is converting geographic proximity into delivery. China's vertically integrated, capital-intensive model gets projects built and commissioned on a timeline that India's relationship-intensive, sovereign-guarantee-dependent model has consistently struggled to match, and Bangladesh's experience since 2024 shows how quickly that gap can translate into lost projects once the domestic political constraints that had favored India come down. This is true even in cases, like Bhutan and Nepal, where India retains substantial political and institutional advantages that China cannot easily replicate.

China is converting industrial capacity into regional influence faster than India is converting geographic proximity into delivery.

Resolving India's upstream dependency on Chinese-processed inputs for its own clean-tech supply chain is the long game India will have to play if it wants its political advantages to translate into durable strategic positioning rather than periodic wins that leave the underlying asymmetry intact. That process will take years and cannot be completed through domestic

industrial policy alone. In the meantime, diversifying India's offerings into market segments China has not yet claimed (public transport electrification, water transport, cooking fuel) and building on partnerships with Japan, Australia, and the EU will be integral to keeping India competitive while the deeper supply chain problem is addressed. Neither of these is a substitute for closing India's delivery-speed gap with China. Both are necessary complements to it.



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ENDNOTES

1. Powering South Asia's clean energy transition. (2026). In ESCAP. United Nations Economic and Social Commission for Asia and the Pacific. <https://www.unescap.org/blog/powering-south-asias-clean-energy-transition>
2. Ahmed, I., & Singh Tanwar, M. (2026). Structural Ties, Political Change: Bangladesh, China and the Next Government. Institute of South Asian Studies (NUS). <https://www.isas.nus.edu.sg/papers/structural-ties-political-change-bangladesh-china-and-the-next-government/>
3. Nayak, S. (2023). Harnessing the Potential of India-Nepal Partnerships in Hydropower. Observer Research Foundation. <https://www.orfonline.org/research/harnessing-the-potential-of-india-nepal-partnerships-in-hydropower>
4. Tamang, S. (2026, June 14). Additional 20 MW electricity export to Bangladesh blocked as India withholds approval. The Kathmandu Post. https://kathmandupost.com/national/2026/06/14/additional-20-mw-electricity-export-to-bangladesh-blocked-as-india-withholds-approval#google_vignette
5. China gets to develop Mongla port economic zone in site delisted for India. (2026, June 27). The New Indian Express. <https://www.newindianexpress.com/india/2026/Jun/27/china-get-to-develop-mongla-port-economic-zone-in-site-delisted-for-india>
6. Chakraborty, D. (2026, June 29). Strategic importance of Bangladesh's Mongla Port, as Dhaka hands key project to China, ending India deal. The Print. <https://theprint.in/diplomacy/strategic-importance-of-bangladeshs-mongla-port-as-dhaka-hands-key-project-to-china-ending-india-deal/2972757/>
7. Pandey, O., Sickell, J., & Escobar, B. (2026). Bangladesh Profile of Chinese Development Finance, 2000-2023. AidData at William & Mary. <https://www.aiddata.org/publications/bangladesh-profile-of-chinese-development-finance-2000-2023>
8. Rahman, Md. H. (2026, April 28). China's Belt and Road Initiative in Bangladesh, 10 Years Later. The Diplomat. <https://thediplomat.com/2026/04/chinas-belt-and-road-initiative-in-bangladesh-10-years-later>
9. Bangladesh's largest solar power project begins commercial operation. (2025). PowerChina. https://en.powerchina.cn/2025-09/02/c_828995.htm
10. Promoting cross-border hydropower development in South Asia. (2023). REGlobal. <https://reglobal.org/promoting-cross-border-hydropower-development-in-bhutan-india-and-nepal/>
11. Transmission. Ministry of Power, Government of India. <https://www.powermin.gov.in/offering/schemes-and-services/details/transmission-cDMYMTMtQWa>
12. List of Outcomes: Visit of Prime Minister to Bhutan (November 11-12, 2025). (2025, November 11). Ministry of External Affairs, Government of India. https://www.mea.gov.in/outgoing-visit-detail?40282/list_of_outcomes_visit_of_prime_minister_to_bhutan_november_11_12_2025
13. Tata Power-Bhutan skills pact to support 5-GW clean energy dev't. (2026, June 2). Asian Power. <https://asian-power.com/project/news/tata-power-bhutan-skills-pact-support-5-gw-clean-energy-devt>
14. Chhewang Rinzin, D. Sustainable Energy: Is Hydropower the Answer? Druk Journal. <https://drukjournal.bt/sustainable-energy-is-hydropower-the-answer/>
15. Khadka, P. (2026, June 22). Supreme Court Order Puts Government in Dilemma Over Phukot Karnali Project. New Business Age. <https://www.newbusinessage.com/news/49174/supreme-court-order-puts-government-in-dilemma-over-phukot-karnali-project/>
16. Prasain, K. (2025, July 28). Nepal shifts gears as EVs hit 73 percent of 4-wheeler imports. Kathmandu Post. <https://kathmandupost.com/money/2025/07/28/nepal-shifts-gears-as-evs-hit-73-percent-of-4-wheeler-imports>
17. Panguni, R. (2026, July 1). Nepal's new government bets on tax revenue over clean energy push. Mongabay. <https://news.mongabay.com/2026/07/nepals-new-government-bets-on-tax-revenue-over-clean-energy-push/>

ENDNOTES

18. Bose, S., & Mukhopadhyay, S. (2025, September 25). Deciphering Dhaka's Diversifying Defence Inventory and Partnerships. Observer Research Foundation. <https://www.orfonline.org/expert-speak/deciphering-dhaka-s-diversifying-defence-inventory-and-partnerships>
19. Joint Press Release between the People's Republic of China and the People's Republic of Bangladesh. (2025c, March 28). Ministry of Public Security, Government of China. <https://www.mps.gov.cn/n2255079/n6865805/n7355748/n7355818/c10006654/part/10006655.pdf>
20. Bangladesh, China launch long-delayed industrial zone. (2026, July 27). ET HRWorld. <https://hr.economictimes.indiatimes.com/amp/news/industry/bangladesh-and-china-launch-long-awaited-chinese-economic-and-industrial-zone/132667661>
21. CEIZ set to attract over \$1 billion investment as construction begins. (2026, July 28). Daily Sun. <https://www.daily-sun.com/economy/889059>
22. Bose, S., & Bhardwaj, A. (2025). Bangladesh's Pivot to China: From Balance to Realignment. Observer Research Foundation. <https://www.orfonline.org/expert-speak/bangladesh-s-pivot-to-china-from-balance-to-realignment>
23. Fatima, K. (2026, June 2). Bangladesh tilts to China as India water-sharing impasse deepens. Nikkei Asia. <https://asia.nikkei.com/politics/international-relations/bangladesh-tilts-to-china-as-india-water-sharing-impasse-deepens>
24. Ahmed, I. (2026, July 27). Recalibrating Foreign Policy: Implications Of Tarique Rahman's China Visit – Analysis. Eurasia Review. <https://www.eurasiareview.com/27072026-recalibrating-foreign-policy-implications-of-tarique-rahmans-china-visit-analysis/>
25. Alam, S. (2026). Fostering Bangladesh's energy transition. Institute for Energy Economics and Financial Analysis. <https://ieefa.org/resources/fostering-bangladeshs-energy-transition>
26. Ghiretti, F., & Ellis, C. (2026, January 21). It's Time to Treat China's Connected Energy Systems As a National Security Risk. RAND. <https://www.rand.org/pubs/commentary/2026/01/its-time-to-treat-chinas-connected-energy-systems-as-a.html>
27. Yang, J. (2025). India and China in deep water over Himalayan hydropower. East Asia Forum. <https://eastasiaforum.org/2025/12/15/india-and-china-in-deep-water-over-himalayan-hydropower/>
28. Domke Seidel, C. (2026, February 26). EVs: Authorities zero in on chinese manufacturers. Table Briefings. <https://table.media/en/china/talk-of-the-town/evs-authorities-zero-in-on-chinese-manufacturers>
29. Phadke, S. (2026, May 4). Safeguarding India's EV Transition: Addressing Cybersecurity Risks from Chinese Electric Vehicles. India Narrative. <https://www.indianarrative.com/opinion/safeguarding-indias-ev-transition-addressing-cybersecurity-risks-from-chinese-electric-vehicles>
30. Top BESS manufacturers & battery storage companies 2026. (2026, June 12). SolaX Power. <https://www.solaxpower.com/blogs/battery-storage-manufacturers.html>
31. Assessing the effectiveness of India's solar Production Linked Incentive scheme. (2025). JMK Research, IEEFA. <https://jmkresearch.com/renewable-sector-published-reports/assessing-the-effectiveness-of-indias-solar-production-linked-incentive-scheme/>
32. Rodrigues, N., & Ewen, M. (2026). Solar growth in South Asia has cut fuel imports for power but deeper reductions need electrification and regional grids. Ember Energy. <https://ember-energy.org/latest-insights/solar-growth-in-south-asia-has-cut-fuel-imports-for-power-but-deeper-reductions-need-electrification-and-regional-grids/>
33. Anand, S. (2026, June 15). India's energy transition at risk, import dependence for critical minerals near total. The Financial Express. <https://www.financialexpress.com/policy/economy/indias-energy-transition-at-risk-import-dependence-for-critical-minerals-near-total/4267208/>

ENDNOTES

34. Dhar, K. (2026, June 25). China Inside: How India can break China's hegemonic hold on critical minerals. Business Today. <https://www.businesstoday.in/magazine/deep-dive/story/china-inside-how-india-can-break-chinas-hegemonic-hold-on-critical-minerals-539316-2026-06-25>
35. Konda, C., & Garg, D. (2026). Securing India's battery supply chain is more critical than ever. Institute for Energy Economics and Financial Analysis. <https://ieefa.org/resources/securing-indias-battery-supply-chain-more-critical-ever>
36. Jowett, P. (2025, December 22). China files WTO complaint against Indian solar subsidies. PV Magazine. <https://www.pv-magazine.com/2025/12/22/china-files-wto-complaint-against-indian-solar-subsidies/>
37. Japan Rare Earth Recycling: Urban Mining Policy 2026. (2026e, June 5). Rare Earth Mining News. <https://rare-earth-mining.com/japan-rare-earth-recycling/>
38. Nissan and Waseda University in Japan testing jointly developed recycling process for electrified vehicle motors. (2021, September 3). Global Nissan Newsroom. <https://global.nissannews.com/en/releases/nissan-waseda-university-in-japan-testing-jointly-developed-recycling-process-for-ev-motors>
39. Kamisuna, T. (2025, August 7). Japan's 'urban mining' and economic security. The International Institute for Strategic Studies. <https://www.iiss.org/online-analysis/online-analysis/2025/08/japans-urban-mining-and-economic-security/>
40. Hazra, M. Z. (2026). South Asia's Integrated Grid and Clean Energy Transition. Observer Research Foundation. <https://www.orfonline.org/research/south-asia-s-integrated-grid-and-clean-energy-transition>
41. Islam, S. (2024, July 1). Chinese venture commissions 68 MW solar plant in Bangladesh. PV Magazine. <https://www.pv-magazine.com/2024/07/01/chinese-venture-commissions-68-mw-solar-plant-in-bangladesh/>



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