Chapter 4

Way Forward and Policy Recommendations

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CHAPTER 4

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The North Eastern Region of India (NER), which, together with its neighbouring countries, was once integrated as a powerful geographic-economic entity, abruptly disintegrated in 1947 and again in 1971, for various historical reasons. However, a new reintegrating venture initiated in the last few years has led to this subregion becoming one of the most attractive and challenging geographies in South and Southeast Asia in terms of energy security and cooperation, and one in which the complexities of sustainable development and national interest security perspectives are well ingrained. This subregion constitutes one of the four border junctions crucial to energy sector cooperation. As a central actor in this junction approach, it has a pivotal role to play in mobilising the other countries to harness the cascading and spiralling impact of this approach on energy exchanges, regional investment, trade, connectivity, and people-to-people contact. This offers a means of eliminating the national prejudices that hamper the process of regionalism amongst these countries.

A major challenge is to re-recognise and relocate the geometric line-based national borders as borderlands along with its related political economy. Borderlands comprise an intrinsic interplay of natural resources, culture, societies, trade-commerce, tourism, water towers, technology, roads and communications, security, federalism, and politics and international relations. Cross-border energy trading (CBET) very much fits into this borderland concept and related interactions, and is emerging as the most practical and socio-politically acceptable project in this new reintegration initiative.

In the drive to trigger and consolidate CBET in the Bangladesh, Bhutan, NER, and Nepal (BBIN) subregion, the NER is emerging as a key geographical and strategic actor. Total power potential in the NER is about 58,900 megawatts (MW), an estimated 40% of the total national potential. However, so far only 1,242 MW (2.1% of the total potential) has been harnessed. Besides hydroelectric power, the NER has 151.68 billion cubic feet of natural gas reserves, which could generate 7,500 MW per year for 10 years, and 864.78 million tonnes of coal reserves, which could generate 240 MW per day for 100 years. The Central Electric Authority of India has projected that this region will be a surplus power region by 2021–2022, provided that the projected capacity additions meet the targeted date of commissioning. This, along with the fact that Bangladesh and Nepal will likely face deficits in the future, could result in the NER and Bhutan exporting 1,100 MW of power to Bangladesh, and the NER consuming 5,082 MW of power both produced in the region and imported from Bhutan. Significant emphasis has been placed on transmission networks within a state, amongst the NER states, and with other Indian states. This is bound to facilitate far-reaching interconnections with neighbouring countries. However, the NER's growth has been constrained by topographical variations, scarce physical infrastructural facilities, and an acute sense of deprivation and alienation amongst the people. Several vital infrastructure initiatives – including the Asian Highway Link, Trilateral Highways, Asian Railway Network, and a Natural Gas Pipeline Grid and waterways – have been launched to integrate the NER economy with that of neighbouring countries. These projects, which are being actively considered by regional organisations like the South Asian Association for Regional Cooperation, BBIN, and Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation, have tremendous potential to relieve the communication isolation of the NER. They also constitute a core element in the proposed Bangladesh–China–India–Myanmar Forum for Regional Cooperation initiative.

Within the BBIN subregion, energy has gradually emerged as a core and sensitive politico-economic-commercial entity, and there has been increasing recognition of the importance of power-generating hubs and their commercial harnessing in Bhutan, Nepal, the NER, and the Myanmar–Lao People's Democratic Republic axis. The new contexts are huge unharnessed hydropower potential and a distinct focus on green and renewable energy as expressed in each country's nationally determined contribution (NDC) commitments. India's Act East

Policy, which establishes the NER as the gateway, combined with 'cooperative federalism' as a new practice in India's foreign policy, enlarges the strategic scope for Bangladesh, Bhutan, and Nepal to approach Southeast Asia through this corridor.

CBET is a powerful instrument to ensure energy security and manage seasonal variations, the demand and supply gap, and regional imbalances in generation in South Asia, as well as the emerging possibilities of investment from diverse players in the power sector. This potential is further enhanced by a series of integrative attractions under various frameworks, including the ASEAN–India Free Trade Area, the Mekong–Ganga Cooperation, the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation, the Bangladesh–China–India–Myanmar Forum for Regional Cooperation, the South Asian Association for Regional Cooperation, and the Regional Comprehensive Economic Partnership. A considerably developed transmission network in the borderlands and emerging energy-intensive projects (including the Central Asia–South Asia Project, Bangladesh–China–India–Myanmar Economic Corridor, China-led growth quadrangle in the Greater Mekong Subregion, China–Pakistan Economic Corridor, and One Belt One Road initiatives in Asia) could significantly change the scope of energy trading in this region. For example, the $60 billion+ China–Pakistan Economic Corridor project, which is based on a strategy of 'one corridor multiple passages', consists of 51 planned and undertaken projects; of these, 24 are energy-related, with an installed capacity of 17,608 MW. At least seven projects are now at the completion stage under its early harvest category (China–Pakistan Economic Corridor).

Broadly speaking, five models of specific project-based power exchanges are now emerging in the BBIN subregion and its potential inter-linkages with Southeast Asian countries: (i) exclusive and largely successful bilateral exchanges such as those between India and Bhutan, and Bangladesh and Nepal; (ii) integration with subregional initiatives like those amongst the countries in the BBIN and Greater Mekong Subregion (this model could be consolidated further as Bangladesh begins joint ventures in hydroelectric power projects in Bhutan and Nepal aimed at importing generated power); (iii) a regional power pool located in the NER–Myanmar junction (this is geographically the most feasible project as it would cover regions in Myanmar with huge power deficits, and also fits into the cooperation framework under India's Act East policy);

(iv) highly local integrative exchanges like the generation-load centre location-based model between Palatana (Tripura) and Comilla (Bangladesh) (this very much fits into India's domestic political dynamics of cooperative federalism); and (v) a wheeling facilitator in the form of a 'virtual energy grid', like that implemented by India between eastern and western Bhutan and the NER to Bangladesh and Southeast Asia. Under this scenario, India would acquire a new role as a transit country, which could be very far-reaching from the perspective of energy security based on the 'four junctions' strategy.

All five of these models are attractive and powerful examples of potential practices in the BBIN subregion and neighbouring subregions in Southeast Asia. In addition to the India–Bhutan interconnection, the latest ground-breaking example of bilateral exchange is that between India and Bangladesh. This has created a perfect opportunity for Bangladesh to import power from Bhutan and Nepal using Indian grids. This is a prime example of Track II diplomacy transforming into Track I , where ideas and advocacy generated at the level of professionals, experts, academics, the private sector, and the media are adopted upfront and implemented by policymakers and line ministries. Given the politico-historical dynamics of nation-building projects in this region, this transformation from Track II to Track I has been a cumbersome, complex, and slow process. It also demonstrates how unprecedented 'political will' and a harmonised and coordinated approach amongst various ministries within a country and their counterparts on the other side of the border can make a relationship mature and bear fruit. Under such initiatives, borders are now increasingly seen as opportunities rather than traditional sources of threats to national security.

These countries' intended NDC commitments indicate that they will consciously renegotiate the share of renewables in the energy mix in the near future. These countries have massive potential for renewable energy growth, with India projected to reach 175 gigawatts (GW) by 2022, Bangladesh 3,168 MW by 2021, and Myanmar 2,000 MW by 2030. This could then be integrated as a second line of CBET. Three border junctions (east, west, and north) could even plan for hydropower regional balancing. These are definite new paths to ensuring green and sustainable growth.

India's Central Electricity Regulatory Commission (CERC) has, for the first time, circulated its draft CBET Regulations 2017, triggering discussions and actions at various stakeholder levels on a cross-border basis. They are presented in Annex A and B. These regulations focus on bilateral trade and 'shall be binding on all the participating entities undertaking such cross-border transactions' (CERC, 2016). Power-generating countries like Bhutan and Nepal have expressed reservations and raised questions as to the eligibility conditions imposed on participating entities. Certain conditions, such as the requirement that power projects in countries like Bangladesh, Bhutan, and Nepal be at least 51% owned or funded by Indian investors in order to be eligible to export power to India puts severe restrictions on Bhutan, Nepal, and other power-generating countries that are trying to attract investment from multiple private, regional, and global sources with the aim of exporting power to India and other neighbouring countries. However, the very fact that such a framework is now in place inspires a range of stakeholders that are keen to undertake power generation and its cross-border transmission and distribution. Initiatives taken by the Government of Bangladesh in engaging with their counterparts in Bhutan and Nepal indicate a strong possibility and acceptance on the part of India to permit the use of its grids for multiple trans-border energy flows and exchanges. In fact, this essentially bilateral framework could be a stepping stone to trilateral and multilateral frameworks for use in the BBIN subregion, and extended to other neighbouring countries in South East Asia and beyond.

1. Cross-Border Trading Model and Three Alternative Scenarios

To analyse the opportunities for CBET between the NER of India and other neighbouring countries such as Bangladesh, Bhutan, Myanmar, and Nepal, this study applies a linear-programming model known as the electricity supply and trade model. This model attempted to find an optimal solution to the electricity supply question (power generation in each region and the cross-border grid connections amongst these regions), to meet the increasing demand for electricity in the region during 2015–2030 while minimising overall costs. The study also explores the potential of the NER to function as a transit provider, generator, and exporter; as well as that of neighbouring countries to expand their economic activities while increasing their energy consumption.

This study designed and used an electricity supply and trade model to determine a cost-optimal electricity mix solution that also meets the electricity demand in multiple countries or regions. Using government documents to understand both the demand forecast and unit cost of various power plants and cross-border grids, this model forecasts the load curves of electricity demand in each region in each season. In terms of the electricity demand forecast, this study revealed that from 2015 to 2030 the electricity demand will increase 3 times in the NER, 2.7 times in Bangladesh, 1.7 times in Bhutan, and 4 times in Myanmar and Nepal. Total electricity demand in the above regions will reach 273 terawatt-hours in 2030, triple the demand in 2015. In the rest of India during the same period, electricity demand will increase to about 2,400 terawatt-hours, 2.2 times the current level.

In India, unlike the present situation where coal-fired power plants account for about 180 GW (60% of total installed capacity), renewable energy sources including hydropower are planned to account for more than 50% of the energy mix in the mid-2020s. Bangladesh is planning to increase the share of coal-fired power in the domestic supply, and its dependence on imported electricity will grow steadily. Hydropower will remain dominant in Bhutan (26.5 GW by 2030) and Nepal (5.0 GW by 2030). In Myanmar by 2030, hydropower is projected to account for 60% and coal 30% of all generated power. India's Ministry of Power estimated that by 2036, India will import around 17,100 MW from Bhutan and 15,800 MW from Nepal, and will export around 2,000 MW to Bangladesh.

This study assumes that the price of fossil fuels (coal and oil) for thermal power plants will gradually increase as existing low-cost oil fields are depleted and oil demand increases in countries not in the Organisation for Economic Cooperation and Development. In terms of initial investment costs, that of nuclear power is the highest, and that of gas-fired power is the lowest. The investment cost of coal-fired power plants differs by region, and that of photovoltaics will gradually decrease with more technological intervention.

Information on the cost of cross-border lines is limited. However, based on the findings of the study by the Asian Development Bank (ADB), this study estimated the costs of investing in several major cross-border grids as follows: $71 per kilowatt (kW) for Bhutan–NER India, $372/kW for Nepal–India other

than the NER, $400/kW for NER India–Bangladesh, and $200/kW for the NER–Myanmar.

This study estimated the potential of the NER as a transit corridor, generator, and exporter under three different scenarios: a reference case, an enhanced grid case (EGC), and an enhanced hydropower and grid case (EHGC). In the reference case scenario, the installed hydropower capacity of the NER will rise to nearly 5 GW in 2030, three times the level in 2015. However, this is still hardly 8% of this region's estimated potential (58 GW). This implies that the NER will still need to import electricity from Bhutan as in 2015, and Bhutan's presence as an electricity exporter will expand.

As Bangladesh will also be a major importer of power from Bhutan, the NER will play an important role as a transit corridor. In the reference scenario, the NER's exports of electricity to Myanmar will be constrained to 2015 levels as domestic electricity supply and demand remain almost balanced. In 2030, the capacity of the NER–Bhutan cross-border line will approach the upper limit of 10 GW, while that between Nepal and India will only reach 2.6 GW. Given the likely large increase in imports to Bangladesh, these interconnections need to expand steadily.

To meet the rapidly increasing electricity demand, the NER and neighbouring regions must double their power generation capacity from 2015 to 2030. The average annual costs of electricity supply in these regions, including the cost of investment in new power plants (except in the rest of India), cross-border lines, and their operation, is expected to reach $10 billion during 2015–2030. Investment costs will account for 30% of this, and costs of operation (mainly fuel) will form the remaining 70%. The annual investment cost for the cross-border grid is estimated at $37 million.

In the EGC scenario, the levels of electricity generation in the NER, Bhutan, and Nepal are almost the same as in the reference case. Bangladesh imports more electricity from the NER, and generates less electricity from gas-fired power. In Myanmar, domestic electricity produced from gas-fired power is also replaced by imports from the NER. Compared to the reference case, the capacity of the NER–Bangladesh connection line increases from 0.4 GW to 10.4 GW, while that of the NER–Myanmar line increases from 24 MW to 1.5 GW. The NER plays an

important role as a transit corridor between the neighbouring regions. Via the NER, hydropower from Bhutan and coal-fired power from the rest of India are exported to Bangladesh and Myanmar.

However, compared to the reference case, electricity supply costs are 10% lower in the EGC, and 15% lower in the EHGC, mainly owing to the increased use of lower cost hydropower replacing thermal power. The cost of power generation decreases in Bangladesh and Myanmar and increases in the rest of India in the EGC compared to the reference case. On the other hand, the increase in the cost of power generation in the rest of India is lower in the EHGC than in the EGC. Conversely, hydropower investment grows in the NER. Compared to the reference case, annual investment in cross-border lines increases to $146 million in the EGC, and $149 million in the EHGC.

Under these circumstances, importers could pay to import electricity instead of generating it domestically. Furthermore, exporters can earn revenue by exporting electricity to cover the increased cost of generating additional electricity. Thus, it must be determined how to set the traded electricity prices (including wheeling charges) between the concerned countries and regions. Stakeholders must discuss the fair allocation of the benefits (e.g., reduced costs).

In the EHGC, the NER plays three crucial roles as a generator, exporter, and transit region. Its hydropower generation capacity increases and it exports the energy to neighbouring regions. The capacity of the NER–Bangladesh connection line is further enhanced to 12.4 GW. This scenario would steadily replace fossil fuel-fired power generated from gas and coal with low-cost, zero-emission hydropower.

This study found that, in the reference case, carbon dioxide (CO_2) emissions related to power generation increase significantly in Bangladesh and Myanmar due to the expansion of fossil fuel-fired (mainly coal) power generation. Total CO_2 emissions in the regions excluding the rest of India will reach 94 million tonnes in 2030, 2.6 times the level in 2015. Furthermore, CO_2 emissions from power generation in the rest of India could increase to around half the 2015 level, reaching 159 million tonnes of CO_2 by 2030. However, in the EHGC, owing to the increase in hydropower, total CO_2 emissions from 2015 to 2030 will be 9% lower than in the reference case.

Additionally, enhancing cross-border interconnections in these regions will bring multiple benefits, not only for the NER, but also for other regions in an economically efficient way. Not only will India be able to utilise fully the planned capacity of its coal-fired power plants, Bangladesh will avoid constructing large-sized thermal power plants and keep CO_2 emissions in check by importing reliable and cost-effective electricity. In addition, Nepal, Bhutan, and Myanmar can reduce the risk of serious seasonal supply gaps arising from lean hydrological flows in the dry season.

Some questions exist as to the correct approach to setting prices for electricity trading (e.g., wheeling charges between the concerned countries and regions). Solving these questions will involve stakeholder discussion and negotiations as to the fair allocation of both the costs of investing in cross-border interconnections (around $75 million per year in both the EGC and EHGC) and the ensuing benefits (costs and emissions reduction).

2. Investment Models

Three investment models have been practiced in the NER. The first is public-sector investment, which has been predominant in the power sector in this region. The second is private-sector participation, such as that encouraged by the North East Industrial and Investment Promotion Policy, 2007 (a NER-specific national policy), wherein the Ministry of Commerce and Industry (Department of Industrial Policy and Promotion) of the Government of India made a specific policy intervention known as the Central Capital Investment Subsidy Scheme, 2007 for industrial units in the NER to accelerate industrial development. The NEIIPP 2007 has been replaced by the North East Industrial Development Schemes 2018 for the period 2017–2022, with a financial outlay of ₹30 billion up to March 2020. This new scheme includes power-generating units with capacities up to 10 MW, and seven categories of incentives for investors, including the Central Capital Investment Incentive for Access to Credit, Central Interest Incentive, Central Comprehensive Insurance Incentive, Goods and Service Tax Reimbursement, Income-Tax Reimbursement, Transport Incentive, and Employment Incentive. The third is private-sector investment attracted by various state government policies, such as the Hydro Policy 2008, which triggered significant interventions from the private sector. Although the Foreign Direct Investment Policy of India 2017 does not mention the power

sector directly, many states have designed their own polices for attracting investment in the power sector that are aligned with national government policies.

Multilateral agencies are increasingly showing interest in this area, and the Japan Bank for International Cooperation, World Bank, Asian Infrastructure Investment Bank (AIIB), ADB, and New Development Bank of Brazil, Russia, India, China, and South Africa are likely to play vital roles in future projects. The Hydro Policy 2008 identifies foreign assistance as a source of financing for central and state-sector hydroelectric projects in the NER. For instance, the World Bank is supporting six states in the NER to augment intra-state transmission, sub-transmission, and distribution networks by upgrading old and constructing new lines and associated substations. The policy also includes Capacity Building and Institutional Strengthening of Power Utilities and Departments of Participating States, a $470 million loan project that will mitigate technical and non-technical losses, frequent interruptions, and outages.

AIIB, with its fund of $100 billion, will complement and cooperate with the existing multilateral development banks. It offers sovereign and non-sovereign financing for sound and sustainable projects like energy and power, transportation, and telecommunications. India's NER and the BBIN countries can access this new source of investment. AIIB has already approved investment in a series of energy-related projects in South and Southeast Asia, including India.

3. Policy Recommendations

To realise and ultimately graduate the NER subregion and energy junctions on its eastern border, the BBIN subregion must provide substantive policy interventions to fill seven gaps in the following areas: (i) knowledge and information; (ii) seed projects; (iii) match making, technical facilitation, human resources, and capacity building; (iv) policy coordination and institutional harmonisation; (v) start-up and real-time ladder steps (e.g., a three-way policy and institutional layer-building strategy to facilitate CBET amongst federal units within a country, between two countries, and in the region must be worked out in great detail); (vi) confidence building; and (vii) technology.

It is also necessary to discuss the political economy of CBET benefits and the cost of non-cooperation. In the very short term, for the NER to become a significant power hub on India's power map, at least eight levels of activities need to be conducted:

i) Sensitise and build capacity amongst the main development actors, including the political leadership, bureaucracy, and technocrats.
ii) Organise several workshops for the stakeholders, including government institutions, the private sector, civil society members, the media, academics, and grass-roots community leaders.
iii) Bring together central and state agencies in the power sector into a common forum like the Ministry for Development of North Eastern Region and North Eastern Council, and sensitise and train them in the wider dynamics and potential of cross-border power exchanges. The North East Industrial Development Schemes 2018 should be revised further by enhancing the coverage of incentives for generating plants with capacities up to 50–100 MW, and allowing foreign investors to participate under its provisions. It is also vital to coordinate with foreign policymaking institutions like the Ministry of External Relations and Ministry of Commerce so that the complex dynamics of cross-border electricity exchanges with neighbouring countries and subregions can be handled smoothly and effectively. The possibility of a joint venture between the NER states and any ASEAN partners, as well as treating generated electricity as a tradable item with unhindered market access in Southeast Asian countries under the India-ASEAN Free Trade agreement could also be explored.
iv) Make extensive surveys of the energy markets in neighbouring countries, and explore the possibilities of extending power trade deals under the framework in the recently issued CERC.
v) Explore the investment possibilities for harnessing these resources from multiple stakeholders including private investors, international development agencies, and financial institutions.
vi) Create a pool of technical and non-technical manpower to cope with the gradation, technological advances, scale of construction, and other operations. For instance, to handle the 5,353 MW capacity added during 2012–2017, the NER requires an estimated 21,687 MW in additional technical (78%) and non-technical (22%) manpower,

including generation, transmission (5,254 cubit kilometres), and distribution (10.8 million consumers). This calls for the setting up of multidisciplinary training institutes, particularly in the hydropower sector, and diversifying the training to cater to these needs.

vii) Coordinate closely with a cross-section of agencies that build infrastructure, including roads, railways, communications, and waterways. For instance, the carrying capacities of roads and bridges in the highlands must be planned in such a way that all of this physical infrastructure can both withstand and sustain the movement of heavy equipment and machinery required for generation plants, transmission set-ups, and distribution networks, while absorbing shocks like natural disasters.

viii) Initiate a dedicated fund in the form of a special purpose vehicle exclusively to finance power projects in the NER, as envisaged in the Twelfth Five-Year Plan.

However, in the long-term, the following issues need to be addressed.

(i) The Power Ministry along with the North Eastern Electric Power Corporation, Power Grid Corporation, Power Trading Corporation, and the state governments should consider the long-term perspective of power trading with neighbouring countries. Newly industrialising regions in southwest China like Sichuan, Yunnan, and the Tibet Autonomous Region, as well as Myanmar, and Bangladesh could absorb much higher tariffs on power purchased from India, thereby raising the level of interdependence. Surplus power from Bhutan and Nepal could be included in this projection.

(ii) It is essential to corporatise electricity entities in the NER to insulate them from political pressure and patronage in pricing, distribution, staffing, and forward planning.

(iii) Enabling documents, legal frameworks, and stepping-stone details should be constructed on all critical areas of CBET at the provincial, national, and regional levels. This includes grid harmonisation, grid code and security, investment and finance, reforms, and regulatory frameworks.

(iv) The existing State Electricity Boards or similar entities should be allowed to borrow for expansion purposes, and the central government should guarantee these borrowings under suitable terms and conditions.

(v) It is critical to coordinate the power sector with the inland water transport system, and with the roads and railways under the Special Accelerated Road Development Programme because the transportation of heavy, oversized consignments or cargo to power projects requires roads, bridges, and underpasses to be designed to ensure adequate capacity. Inland water routes remain untapped for this purpose.

(vi) A comprehensive trading tariff structure under different energy mix scenarios, scales, geographical situations, and institutional frameworks must be built and finalised after intense deliberation. This structure should include a trading license regime, transmission pricing rules, determinations of tariffs, coordination with cross-border agencies, and operational details of payment mechanisms. The table reveals the complexity of the tariff regime in the present bilateral exchanges, which vary according to country, agency, source of energy mix, and private and public production structures. However, understanding the political economy of this complex pricing system provides an opportunity to adopt the best instrument from a range of existing arrangements.

Table 4.1 Bangladesh, Bhutan, India, and Nepal Initiative Countries – Tariff Layout

Bhutan–India	India–Bangladesh	India–Nepal
• Tala: ₹1.80/kWh for the first year (now ₹1.98/kWh – $0.003/kWh) • Dagachhu: ₹2.40/kWh for the first year (started in 2015) ($0.04/kWh)	• NVNL: ₹2.40/kWh (August 2014), ₹2.86/kWh (May 2015) ($0.04/kWh) • PTC: ₹4.26–₹5.00/kWh (December 2013–May 2015) ($0.071/kWh) • Tripura–Comilla ₹5.50 per unit ($0.091/kWh)	• Treaty/bilateral: currently ₹5.40/kWh ($0.09/kWh) • PTC: ₹4.55/kWh (FY2011), ₹4.35/kWh (FY2012), ₹4.30/kWh (FY2013), ₹3.75/kWh (FY2014) • NVNL-NEA PPA (80 MW) ₹3.44/kwh ($0.05/kWh)

kWh = kilowatt-hour, MW = megawatt, NVNL = National Thermal Power Corporation Vidyut Vyapar Nigam, NEA = Nepal Electricity Authority, PTC = Power Trading Corporation of India, PPA = power purchase agreement.

Note: 'FY' before a calendar year denotes the year in which the fiscal year ends, e.g., FY2018 ends on 30 September 2018.

Source: Panda, R.R. (2016), 'Accelerating Cross Border Electricity Trade and Hydro Power Development between Myanmar and South Asia: Opportunities and Challenges', August. United States Agency for International Development–South Asia Regional Initiative for Energy Integration–Integrated Research and Action for Development.

India's Draft CERC (Cross Border Trade of Electricity) Regulations, 2017 (presented in Annex B) puts forward possible avenues for tariff determination. One such avenue would be government negotiations, like those undertaken for the Chukha Hydro Power Project between India and Bhutan. The draft also proposes that the tariff for the Cross-Border Transmission Lines and Associated Systems policy (from the pooling station in India to the Indian border) shall be determined as per the CERC (Terms and Conditions of Tariff) Regulations, 2014. The tariff for transmission within India shall be established based on the prevailing laws under Sections 62 or 63 of the Electricity Act.

The NER's three-dimensional role as power producer, exporter, and transit provider is only possible if a quadrangular approach to build energy linkages and promote integration is consciously put in place. This quadrangular perspective – (i) within a state, (ii) amongst the NER states, (iii) with the rest of India, and (iv) cross-border interactions – will bring openness, reoriented thinking, and varied opportunities for the NER. In such a situation, besides enabling the region to conserve its own energy resources significantly and earn substantial revenue from wheeling charges, the participation of a variety of development actors will bring knowledge, more choices in terms of production and generation techniques, a fresh work culture, and modern institutional practices. In turn, this will build new skills and capabilities, modern technologies, and efficient management and governance practices; and will inject a strong sense of human security, ultimately ensuring national security.

4. Key Messages

This study has far-reaching implications as an instrument in India's Act East Policy, including repositioning the NER as a subregion with a view to make it a robust economic growth pole in India; promoting project-based subregional cooperation and ventures with a subregions like the BBIN, Greater Mekong Subregion, and Mekong–Ganga Cooperation in Southeast Asia; and encouraging the participation of multilateral agencies, private investors, and other institutional investors such as the Japan International Cooperation Agency and AIIB.

Based on the findings of this study, its key policy messages are as follows:

(i) Build institutional and human capacities in the region by connecting critical stakeholders, including policymakers, technical and professional institutions, investors, civil society, and community leaders.
(ii) Construct various CBET scenarios, a menu of benefits, and models of cooperation, and provide choices and alternative pathways to policymakers and other stakeholders.
(iii) Coordinate and harmonise, in a regional document, national priorities and emerging policy frameworks as reflected in each member country's Energy Sector Strategy.
(iv) Reposition the NER to utilise its rich and unharnessed renewable sources effectively. Another relevant context is the BBIN countries' NDC commitments to comply with the provisions of the Paris Agreement and fulfill Goal 7 of the Sustainable Development Goals.
(v) Initiate multilayer interdisciplinary dialogues and consultations amongst various stakeholders and development partners, both within and outside the country.
(vi) Prepare the enabling documents, legal framework, and stepping-stone details on all critical areas of CBET in the NER at both national and regional levels (e.g., grid harmonisation, grid code and security, investment and finance, reforms and regulatory framework, and tariff considerations).
(vii) Bring together both conventionally accessed and new multilateral financial and investing institutions including the World Bank, ADB, United Nations agencies, the Japan International Cooperation Agency, AIIB, and the private and public sectors as facilitating actors.
(viii) Sensitise local and provincial communities and borderland regions to support CBET ventures that promote and propagate provincial, national, and regional wellbeing.
(ix) Create a common energy platform and strategic planning and management committee exclusively for the NER where the Ministry of Development of North Eastern Region, North Eastern Council, North Eastern Electric Power Corporation, North Eastern Development Finance Corporation, Ministry of Power, independent power producers, multilateral institutions, the national grid, private power exchange distributors, and other stakeholders could negotiate and firm up CBET.
(x) Assess the capacities of neighbouring countries to absorb electricity exports from the NER and other regions in terms

of markets, transmission capacities, regulatory frameworks, investment destinations, and other institutional capacities.

These key findings should be studied further to generate more information and knowledge, create critical space for cross-border energy exchanges, generate adequate alternatives for policy interventions, and highlight the scope for cooperation and integration with Southeast Asian countries. A deeper and wider assessment of all of the crucial findings could attract significant interest from regional, global, and multilateral investors.

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