

Regional Investment Framework and Guidelines for Promoting Investment in South Asian Power Sector and in Cross-Border Electricity Trade in South Asia

Task Force-I Report



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South Asia Regional Initiative for Energy Integration

September 2017

Abbreviations

ACDR	Afghanistan Centre for Dispute Resolution
ACEP	Afghanistan Clean Energy Program
ADB	Asian Development Bank
AEDB	Alternative Energy Development Board
AISA	Afghan Investment Support Agency
APTTA	Afghanistan Pakistan Transit Trade Agreement
ASEAN	Association of Southeast Asian Nations
ASPIRE	Accelerating Sustainable Private Investments in Renewable Energy Programme
BCC	Bangladesh Competition Commission
BERC	Bangladesh Electricity Regulatory Commission
BFI	Bank and Financial Institutions
BIMSTEC	Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation
BIPPA	Bilateral Investment Protection and Promotion Agreements
BoI	Board of Investment
BPCL	Bhutan Power Corporation Limited
BPDB	Bangladesh Power Development Board
BSEC	Bangladesh Securities and Exchange Commission
CAREC	Central Asian Regional Economic Cooperation
CASA	Central Asia South Asia
CASAREM	Central Asia-South Asia Regional Electricity Market
CBET	Cross Border Energy Trade
CEB	Ceylon Electricity Board
CERC	Central Electricity Regulation Commission, India
CIT	Citizen Investment Trust
CPP	Captive Power Plant
CSE	Chittagong Stock Exchange
DABS	Da Afghanistan Breshna Sherkat
DGPC	Druk Green Power Corporation
DGPC	Druk Green Power Corporation
DISCO	Distribution Company
DSE	Dhaka Stock Exchange
DTAA	Double Tax Avoidance Agreements
ECO	Economic Cooperation Organization
FDI	Foreign Direct Investment
FITTA	Foreign Investment and Technology Transfer Act
FSRU	Floating Storage and Regasification Unit
FTA	Free Trade Agreement
GDP	Gross Domestic Product
GENCO	Generation Company
GoI	Government of India
GoN	Government of Nepal
GW	Giga Watt
GWh	Giga Watt Hour
HCI	High Commission on Investment
HEP	Hydro Electric Power
HVAC	High Voltage Alternating Current

IBN	Investment Board of Nepal
ICSID	International Centre for Settlement of Investment Disputes
IPB	Industrial Promotion Board
IPP	Independent Power Producer
IRADE	Integrated Research for Action and Development
IFIs	International Financial Institutions
kWh	Kilo Watt Hour
LAA	Land Acquisition Act
LEL	Land Expropriation Law
MDB	Multilateral Development Bank
MFN	Most Favoured Nation
MIGA	Multilateral Investment Guarantee Agency
MoE	Ministry of Energy
MoEF	Ministry of Environment and Forests
MoF	Ministry of Finance
MPP	Mega Power Policy
MW	Mega Watt
MFI	Multilateral financial Institutions
NCRE	Non-Conventional Renewable Energy
NEA	Nepal Electricity Authority
NEP	National Energy Policy
NEPS	North East Power System
NGO	Non-Governmental Organizations
NRB	Nepal Rastra Bank
NREL	National Resource Energy Laboratory
NVVN	NTPC Vidyut Vyapar Nigam
OPIC	Overseas Private Investment Corporation
PGCB	Power Grid Company of Bangladesh
PGCIL	Power Grid Corporation of India Limited
PIL	Private Investment Law
POISED	Preparing Outer Islands for Sustainable Energy Development Programme
PPP	Public Private Partnership
PPPAC	Public-Private Partnership Advisory Council
PSIG	Private Sector Infrastructure Guidelines
PSMP	Power System Master Plan
PSPGP	Private Sector Power Generation Policy
PTA	Power Trade Agreement
PTC	Power Trading Corporation
PUCSL	Public Utilities Commission of Sri Lanka
R&R	Rehabilitation and Resettlement
RAPSS	Remote Area Power Supply System
RE	Renewable Energy
REC	Renewable Energy Certificate
RGOB	Royal Government of Bhutan
RoW	Right of Way
RPO	Renewable Purchase Obligation
S&P	Standard & Poor's
SA	South Asian
SAARC	South Asian Association for Regional Cooperation
SAC	South Asian Countries

SAFTA	South Asia Free Trade Area
SAPS	South Asian Power Sector
SARI/EI	South Asia Regional Initiative for Energy Integration
SDPA	Strategic Development Project Act
SEDA	Sustainable Energy Development Agency
SEPS	South East Power System
SHDP	Sustainable Hydropower Development Policy
SPP	Small Power Plants
SPV	Special Purpose Vehicle
SREP	Scaling up Renewable Energy Program
SWOT	Strength Weakness Opportunity Threats
T&D	Transmission and Distribution
TIFA	Trade and Investment Framework Agreement
TSA	Transmission Service Agreement
UNCITRAL	The United Nations Commission on International Trade Law
USD	United States Dollar
VAT	Value Added Tax
WTE	Waste To Energy
WTO	World Trade Organization



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I. Executive Summary

The need for cross border electricity trade in South Asia is well recognised and there have been continuous efforts in the recent past to increase the bilateral trade of electricity amongst the participating nations. The Government of India has recently come out with guidelines for cross border trade and the Central Electricity Regulatory Commission (CERC) followed this up with draft regulations. While this will strengthen the framework for bilateral electricity trading arrangements between India and the neighbouring countries in the short to medium term, the progression towards a regional integrated electricity market would be an important next step. The regional power sector integration involves robustly interconnected national electricity networks to enable trading of substantial power across countries, integrated transmission network planning with well-defined systems operating rules for seamless supplies originating in another country to be delivered to domestic consumers, a market framework which encourages competitive trading of capacity and energy and common market guidelines to attract investments in the sector.

South Asian countries are endowed with diverse energy sources with an estimated combined hydro potential of 350 GW (primarily Bhutan, India, Nepal and Pakistan). Harnessing this clean energy potential can accelerate development in each of the South Asian Countries (SACs) and the region. Unfortunately, many of the countries are unable to harness the energy potential due to low investment capital, lack of access to technology, non-availability of skilled manpower, and lack of a strong institutional framework for project development and operations.

South Asia is one of the fastest growing regions in the world and it is projected that it will require USD 1,390 billion¹ of investments during the period 2015-2040 to add approximately 750 GW of electricity generation capacity. The region of South Asia (SA) has strong prospects for CBET, which have been recognised but not yet exploited. At present, SACs participate in CBET projects on a bilateral basis and the total CBET capacity is currently pegged at 2,300 MW. In South Asia CBET takes place only between India – Bhutan, India – Nepal and India – Bangladesh. The CBET has been facilitated through bilateral government to government arrangements, which are based on case-to-case negotiations.

The global experience in the evolution of regional CBET shows that the power market unification is an ongoing process and not a discreet event. The SACs recognised the advantages of CBET in the initial bilateral projects and are taking steps for creating a regional power market among the SACs. This is expected to increase manifold and would require huge investments for the development of cross border power projects and its associated transmission infrastructure.

Given that the power projects are capital and time intensive in nature and the growing economies in South Asia would face challenges in mobilising the huge investments required for building the generation capacities and regional transmission network in the region, the involvement of the private sector and multi-lateral financing agencies assumes significance. The international case studies from South African Power Pool (SAPP), Greater Mekong Region (GMS) and other regional pools have shown that the private sector's involvement and mobilisation of Foreign Direct Investment (FDI) for the regional generators (those supplying cross border power to other countries) is necessary as governments and multi-lateral funding agencies are usually tasked with establishing the regional transmission networks.

¹<http://documents.worldbank.org/curated/en/846141468001468272/pdf/WPS7341.pdf>

To understand the investment scenario in each of the SACs, this study has mapped country specific parameters like

- Macro-economic indicators such as GDP, corporate tax and interest rates
- Key indicators for investment such as sovereign rating and debt/GDP ratio
- Ease of doing business ranking by World Bank which determines the attractiveness of a country based on standard parameters
- Energy sector profile in each country captures energy access, energy consumption per capita and installed capacity along with endowment of natural resources

In the electricity sector, there have been limited cross border investment initiatives in the generation sector. Most of Bhutan's hydropower projects have been developed through grants and loans from the Government of India; private sector participation has so far been limited to one project. Similarly in Bangladesh, NTPC India has entered into a Joint Venture with Bangladesh Power Development Board (BPDB) to develop 1,320 coal based power projects (Maitree Super Thermal Power Project) in Bangladesh. In Nepal, two Indian companies were awarded hydropower projects (each of 900 MW capacity) in 2014 through a competitive bidding process. The estimated combined investments in the two projects would be around USD 2.2 billion. The development of bilateral interconnections has been supported through the involvement of multi-lateral financing institutions like ADB, World Bank/IFC.

The study has mapped the current provisions in policies, laws and regulations across countries to understand the existing investment framework both at the country level and regional level. This investment framework has been reviewed for the investment promotion of private capital in the region and investment protection parameters available in the respective countries. The following key observations emerge from a detailed analysis of the existing investment framework:

- FDI policies are quite liberal for the electricity sector across all SACs.
- Many countries like Bangladesh, India and Pakistan have a well-defined Public Private Partnership (PPP) framework for infrastructure projects.
- The electricity regulatory frameworks are in various stages of evolution in the region, ranging from no regulator in Nepal to well defined two layered (Central and state) regulatory bodies in India. Others like Bangladesh, Sri Lanka and Bhutan have established regulators.
- India has recently published the CBET guidelines, which would be applicable for bilateral trade between India and neighbouring countries.
- The legal and dispute regulation mechanism is not very strong though most countries comply with international agreements and conventions. The settlement of disputes can be time consuming due to slow judicial processes.
- The land procurement, environment and social clearances and rehabilitation issues take time in all the SACs though laws and policies may exist for promoting investments. In most cases, this is due to lack of well-defined guidelines, processes, etc.

The cross-border element tends to increase the risks associated with project implementation. This is on account of geopolitical, economic and trade related factors. Hence, risk identification and balanced allocation is important for developing the investment framework. CBET is subject to typical risks like **Political and Country Risk** (comprising security, expropriation, breach of contract), **Policy and Regulatory Risk** (dispute resolution, change in law etc.), **Off-taker Risk** (comprising supply, pricing,

payment default), **Developer Risk** (financing, project implementation, operations, payments security). These risks escalate substantially when projects span more than one country and require developing a generation plant in another country or constructing a cross border transmission line.

A power project is generally a long term project with a life span varying from 25 years to as long as 40 years. In a project so dispersed, there are risks associated with various functions such as inability to generate revenue, getting licenses to participate in open access market, ensuring timely fuel supply which may impact the financial viability of the project and hence financial closure. The challenges faced by the developers in the project's implementation phase remain high in the region. This is on account of **delays in acquiring licenses and clearances** for the project, complicated land acquisition processes, etc. The ability of developers to raise financing in the local market is impacted due to the **limited depth in the domestic capital markets** in the SACs except India.

Keeping in view the above mentioned potential risks and gaps identified in promoting private sector investment in the power sector in both domestic and CBET projects, this report undertook the study of international power pools which can provide learnings in terms of best practices and practical approaches for the South Asian region. The ongoing trade in power pools like SAPP, GMS, ASEAN Power Grid, Gulf Cooperation Council (GCC) countries, West African Power Pool (WAPP), cross border trade between Georgia-Turkey etc. are relevant examples of CBET for South Asia. The review shows that initially the investments in CBET projects can be done on a bilateral basis, but it eventually needs to evolve under a regional body, which is responsible for the identification of CBET projects, and also determine terms of selection and award through the private sector or Multilateral Financial Institutions (MFI) route. These decisions have to be supported through a regional framework and guidelines. The following observations emerged from the international review.

- **Inter-governmental Agreements and Multilateral MoUs:** Inter-governmental agreements would help protect and promote such projects and reduce the risks of policy/regulatory surprises and expropriation.
- **Competitive Market Pricing:** In SAPP power pricing is independent of political interventions. Thus, setting up a competitive market pricing mechanism by the regional coordination agency is essential in reducing potential political risk in domestic power projects and CBET.
- **Commercial Arrangements:** The experience of power pools and other regional electricity trade arrangements highlights the importance of comprehensive, well-drafted, standard contracts that fully incorporate the consequences of contractual defaults and emergency events.
- **Funding for CBET** has largely been done through International Financial Institutions (IFIs), Multilateral Development Banks, concessional debt financing and technical assistance, national contributions etc.
- **Dispute Resolution** aspects have been addressed through settlement procedures being part of treaties and agreements, options for amicable settlements, international arbitration etc.
- **Coordinated Planning and Implementation:** The ASEAN, SAPP, GMS power pools have seamless communications by way of annual meetings, quarterly collaboration etc. GMS has 10 years of initial commitment for member countries while ASEAN has 20 years of outlook planning for the region. This helps them identify the projects and select them on priority basis over a long period of time.
- **Guarantee Against Nationalisation:** Political insecurity is the main concern of foreign investors. Having guarantees against such risk would improve the investor's comfort. WAPP is an example of such a power pool, which guarantees investors against any risk of nationalisation.

International experience shows that the financing of CBET power projects faces many difficulties due to the involvement of various governments leading to a mismatch in the frameworks, uncertainties in policy and regulatory frameworks, etc. Thus, it is essential to have a regional coordinator to provide investors some comfort by way of regional planning and selecting regional projects with the consent of the majority of member countries of the coordination body. This reduces the revenue risk of the project and also keeps in check the potential of any arbitrary decisions being taken by the stakeholder. Various consultation meetings/roundtable workshops²/interactions³ were held in South Asian countries to a) Deliberate on key issues and concerns impacting investment in the regional power development, South Asian Power Sector and Cross Border Electricity Trade projects and required areas for intervention and identifying appropriate investment & policy framework to promote regional investments in power sector and cross border energy trade and b) To assess, analyses and gather the key concerns of investors⁴, lenders, Multilateral Development Banks (MDBs), Project developers for promoting investment in SAPs and in particular in the regional power projects & CBET projects with a view to develop of Regional Investment Framework and Policy Guidelines for promoting investment in South Asian Power Sector and in Cross-Border Electricity Trade (CBET) in South Asia. Based on review, analysis and suggestion merged from the various consultation meetings/roundtable workshops/interactions, the key recommendations for addressing the risks, which are emerging from the international review are summarised below.

- **Political Risk** be assessed in advance and mitigated through
 - Instruments like partial risk guarantees, MIGA guarantees and sovereign guarantees.
 - Further reinforced through inter-governmental agreements, treaties or MOUs, and Host Government Agreements (HGAs) which would ensure that the countries in which the investments are being made provide stable investment regimes.
 - The power pool could extend guarantees against the nationalisation of cross border assets.
- **Policy, Regulatory and Legal Risk** addressed through the establishing of a regional body for aligning the investments in the region, provisions for dispute resolution through arbitration in a neutral third-country or agreed arbitration mechanisms, etc.
 - Currently, most of the SACs have their respective master plans or have bilateral arrangements to develop cross border assets. These plans should be combined to develop a **regional level master plan**, which should cover priority projects at the regional level and the required corresponding investments. The study done by SARI/EI/IRADE on “Harmonization of Grid Codes⁵, Operating Procedures and Standards to facilitate/promote Cross-Border Electricity Trade in the SA Region-Framework Grid Code Guidelines” recommends a detailed planning guideline/code for development of a Regional master plan which can be a starting point for evolving regional master plan.
 - Similarly, the harmonisation of the **regulatory framework** in the region would provide predictability in the tariff setting mechanism, transmission open access system, etc. The Regional Regulatory Guidelines⁶ developed by SARI/EI/IRADE can be also a starting point for evolving towards a regional regulatory framework. A transparent, fair and commonly accepted **legal framework** to adjudicate disputes and provisions for arbitration helps create investor confidence.

²<https://sari-energy.org/wp-content/uploads/2017/03/Final-Background-Note-and-Key-Points-for-Discussion-Round-table-Workshop-Nepal-Rajiv-14-2-2017-1-1.pdf>

³<https://sari-energy.org/wp-content/uploads/2016/10/Concept-Note-Round-Table-Stakeholder-consultation-meeting-Investment-policy-guidelines-and-Regional-Investment-Framework-20th-October-2016-Hotel-Amari-Dhaka-Bangladesh-1.pdf>

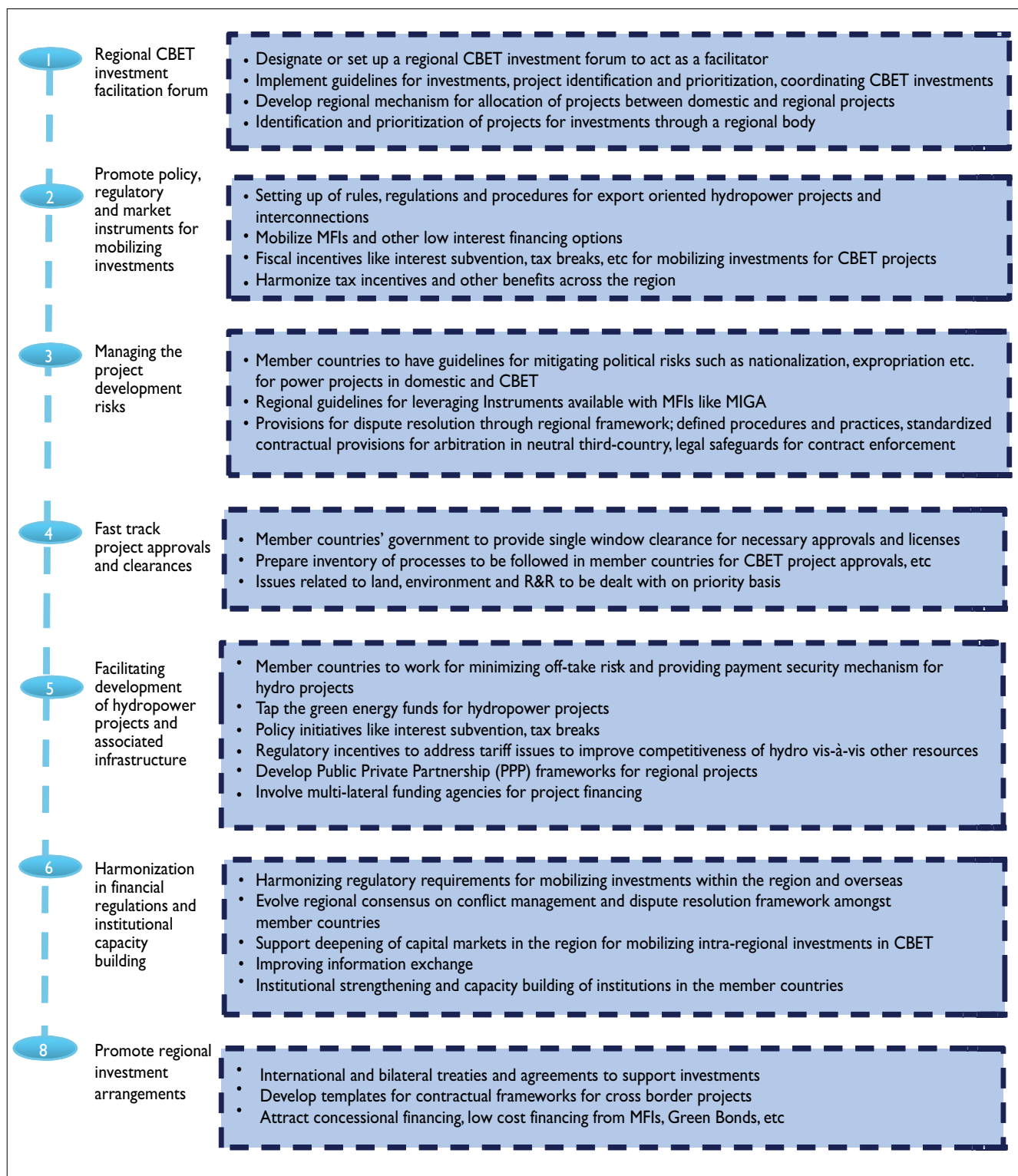
⁴<https://sari-energy.org/wp-content/uploads/2016/10/Regional-Investment-Framework-and-Policy-Guidelines-Bangladesh-Workshop-2016-Delloitte-Rajiv-SARI-EI-IRADE.pdf>

⁵<http://www.irade.org/Harmonisation-of-grid-codes-operating-procedures-and-standards-to-facilitatepromote-cross-border-electricity-trade-in-the-south-Asia-region-Framework-grid-code-guidelines-Rajiv-LR-1.pdf>

⁶[http://www.irade.org/IRADE-SARI-EI-Regional%20Regulatory-Guidelines%20\(July%202015\)-.pdf](http://www.irade.org/IRADE-SARI-EI-Regional%20Regulatory-Guidelines%20(July%202015)-.pdf)

- The complete **harmonisation of taxes and duties** w.r.t CBET in South Asia would be required through a formal arrangement. The current framework of no custom duty, export tax or transit tax in regional electricity trade could change with the emergence of a more complex multilateral regional trade platform.
- **Off-taker Risk** addressed through bankable contractual agreements like Power Purchase Agreements (PPAs), Transmission Service Agreements (TSAs), which have provisions of compensation in the PPAs, pass through of cost etc.
 - A **credit rating framework** at the regional level could be considered for the utilities in the region to provide guidance to international investors.
 - Guidelines on the **foreign currency denominated PPAs** for CBET projects should be specified at the country level and these would be consistent with principles evolved at the regional level.
 - An investment led trade like CBET would require greater certainty on **market access** in SACs. Adequate market access must be guaranteed through open access through power trade agreements.
- **Developer's Risk** addressed through incorporating appropriate payment security mechanisms, evolving frameworks for intra-regional investments, making available cheaper funds like green bonds, addressing the currency risks, etc.
 - The **local processes for the approvals** and clearances need to be streamlined and made investor friendly for CBET projects.
 - A commonly agreed investment protection framework should be evolved and complied with by the constituents in the region. This could be extended by having standardised **contractual documents** (PPAs, TSAs and payment security mechanisms) based on commonly agreed regulatory guidelines and comprise provisions for pricing, settlement, events of default, payment terms and security, etc.
 - Development of regional funds and improving access to cheaper sources of finances like green bonds, etc., for the development of hydropower projects.

The above findings and proposed recommendations recognise that a regional investment framework is important for the long-term development of transparent CBET among the SACs. This would ensure consistency in the approach to the basic principles and address the key risks associated with investments for cross border assets. The study proposes a South Asian Electricity Sector Investment Forum to manage this process in close coordination with governments and institutions like the SAARC Secretariat, committees and forums involved in the area of facilitating power trade. The above necessitate the establishing of regional investment guidelines (developed and provided as part of this study), which aim to establish a conducive investment environment for cross-border trading in South Asia. The guidelines and the supporting explanatory memorandum are described in the form of principles and processes that need to be adopted. A brief summary (fig-1) of the Regional Investment Framework and Policy Guidelines guidelines is provided below.

Figure 1 Brief Summary of Regional Investment Framework and Guidelines

2 Introduction

2.1 Project Background

Regional cooperation offers an ideal platform for achieving sustainable growth through the sharing of available natural resources in the region. In the context of the energy sector, it is applicable to the SACs where there is a vast diversity of available energy resources, which are still under development, particularly hydropower and renewable energy. The dominance of certain fuel types—coal in India, gas in Bangladesh, petroleum in Pakistan, hydro power in Bhutan and Nepal leads to over-dependence on these resources at the country level and leaves them vulnerable to supply side risks. There is a need to have diversity in the energy supply mix as well as improve the energy access for large populations in these countries, which are deprived of the benefits of electricity. There is also a need to balance the conventional resources with the renewable energy resources for better management of the effects of climate change in the sub-continent.

All the countries in the region are facing similar challenges of the rising cost of electricity supply and there is an urgent need to improve the access to electricity for a large section of the population. With rapidly rising demand across all the countries and limited supply augmentation options in the short term, there are huge opportunities for the optimisation of resources through interconnected power systems across the region.

Regional electricity trade has the potential to deliver significant economic benefits as well as improve the reliability of power in an environmental friendly manner. Each country has individual energy needs and specific resources, which under integrated regional planning can be leveraged in the most cost-effective and environmentally sustainable manner. Further, regional energy cooperation offers several advantages for the SACs such as:

Optimal utilisation of diverse resources: Nepal and Bhutan have immense hydropower potential and less than 10 per cent of the technically feasible potential has been harnessed so far. India has rich coal reserves while Bangladesh and Pakistan have abundant natural gas resources. The diverse resource spread can be effectively utilised thereby reducing dependence on imported fuel or one particular fuel, thus benefiting all the countries.

- **Complimentary demand curves:** The complementarity in daily, monthly and annual demand can be observed in Nepal and Bangladesh; Nepal has maximum generation potential during the summer monsoon months while Bangladesh and the northern states in India face electricity shortages during the same period. The situation reverses during the dry season around December and January, when hydro generation in Nepal and Bhutan decreases.
- **Promotes investments at the regional level:** The development of new generation facilities, interconnection and associated infrastructure would require significant investments. The availability in the local capital markets can be constrained due to perceived risks attributed to energy sector projects in various countries. Broadening the market access, as a result of regional integration can provide opportunities for private capital to flow. The development of hydro projects in the region is to a large extent dependent on the capital inflow from private investors and leveraging financing from the multi-lateral funding agencies.
- **Provides economies of scale for generation:** Regional and international cooperation can help in addressing the issue of high cost financing in certain geographies and benefit all the countries in the region.

- Aligns with the environmental and climate change objectives of the countries: The electricity trade enables optimisation of supply sources thereby reducing the impact on climate and environment. For instance, a supply deficit economy like Bangladesh can have the option of procuring cheaper and environment friendly hydropower from Nepal or Bhutan instead of mobilising its resources for the generation of coal based or gas based power.

Many of these countries are unable to effectively harness the available natural sources due to reasons such as large capital investment being required, lack of strong policy framework and mismatch in demand-supply. Addressing these challenges would enable the countries to trade among the region and maximise value creation by generating and transmitting energy in the most economical fashion. Regional cooperation in the form of CBET provides a reasonable option in view of the resource complementarities that exist in the region.

This study aims to evolve a regional investment framework based on the situation in each of the countries in the region, given that

- Bilateral arrangements for exchange of energy are quite strong in the region and the government to government (G to G) framework has evolved. The next important step is developing a regional investment framework to support the power sector initiatives in SACs and for CBET amongst SACs.
- Investments in a regional transmission framework for seamless integration in South Asia remain a priority. It is important to tap the large hydro potential in the Himalayan region and address the growing demand in energy deficit countries like India and Bangladesh.
- Encouraging cross border investments in power requires actions both at the country level and regional level.
- Energy sector investments are time and resource intensive and have to be done with a long-term view.
- A volatile business environment increases risk and reduces appetite for investment.
- Addressing project development risk requires country specific actions.
- Evolving a regional level investment framework, which addresses risks and associated issues.

2.2 Objective of the Study

The objective of the study “Regional Investment Framework and Policy Guidelines for Promoting Investment in South Asian Power Sector and in Cross-Border Electricity Trade in South Asia” is to develop a regional investment framework to support the power sector initiatives in SACs and for CBET amongst them. This involves identifying the key gaps in the existing frameworks in the region and across SACs and managing risks that can impede investments in the South Asian energy sector, specifically focusing on CBET and hydropower development in the region. The study aims to evolve a framework to facilitate investments in the energy sector in South Asia, and recommend changes and amendments in the current framework for the creation of cross border electricity infrastructure in SACs.

2.3 Scope of Study

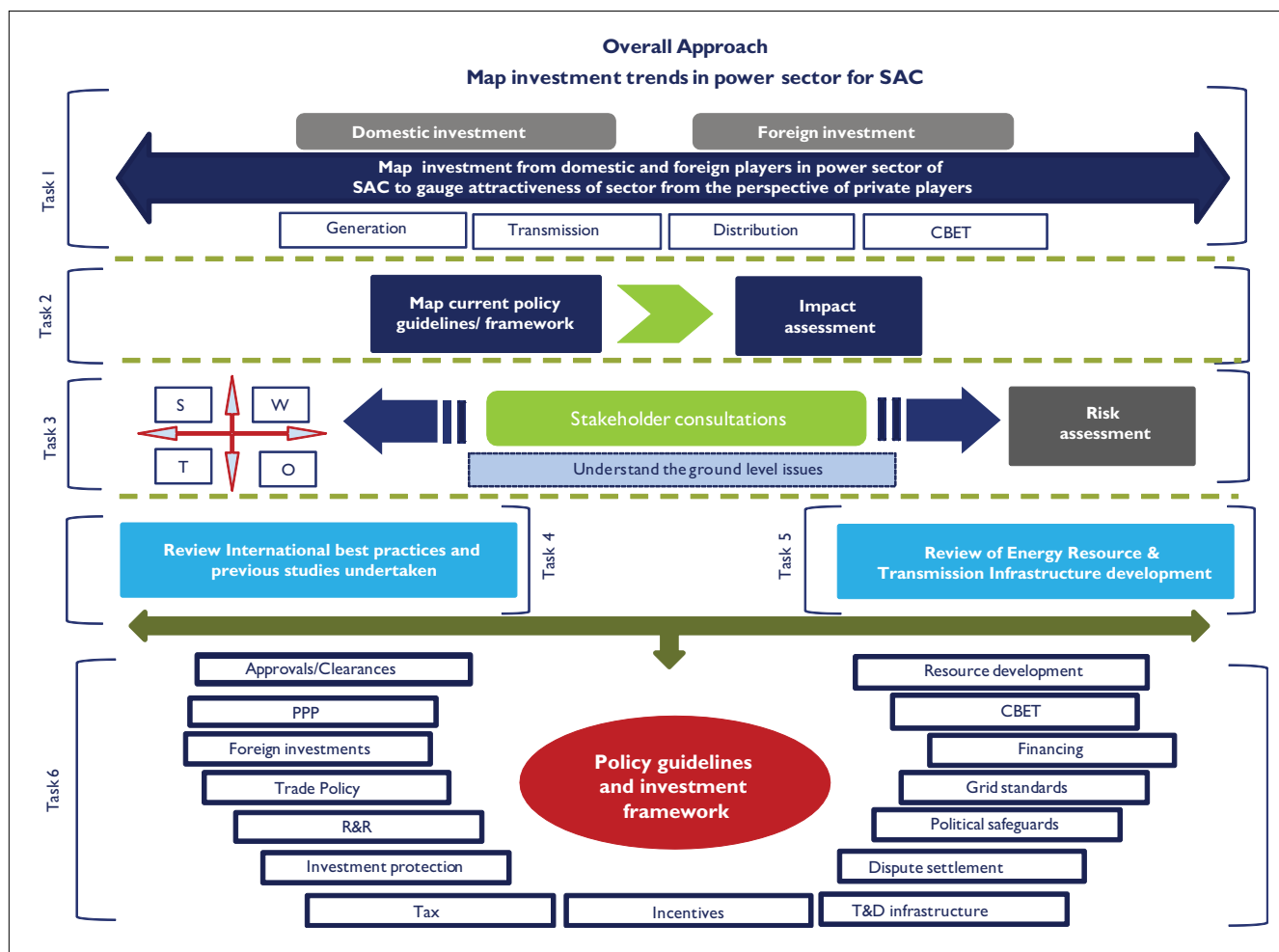
The scope of work as per the Terms of Reference is as follows.

- Review and analyse the current investment scenario and trends in South Asian Power Sector (SAPs) and particularly CBET projects.
- Review and analyse investment related policies/guidelines/regulations/frameworks etc. prevailing in each SACs including FDI policies, fiscal benefits and facilities, incentives for investors (both domestic and foreign), instruments for investment protection, policies for the private sector and PPP etc. and its impact on investment in the power sector and particularly in regional power and CBET projects in the South Asian region.
- The review and analysis will also include the various laws/regulations/policies/provisions related to environment, land acquisition, competition laws/policies, trade policies, corporate tax regimes, royalty regimes, contract enforcement and dispute settlement mechanisms, investment promotion and facilitation, rehabilitation and resettlement etc. and its impact on investment in the power sector and in regional power and CBET projects in the South Asian region.
- Assess and analyse the key concerns of investors, lenders, Multilateral Development Banks (MDBs), project developers for promoting investment in SAPs and in particular in the regional power projects and CBET projects and also carry out a SWOT analysis and risk assessment of the same.
- The review should focus on the development of energy resources particularly relating to hydropower resources and associated transmission infrastructure (including Cross Border Transmission Links).
- Analyse the international best practices on investment policies/guidelines/regulations including innovative mechanisms and suggest/recommend the same for promoting investment in the South Asian region.
- The review should also cover the various studies undertaken by SARI/EI Task Forces, SAARC, ADB etc.

Based on review and analysis, develop Regional Investment Framework and a Regional Investment Policy Guidelines (IPGs) for promoting investment in SAPs and particularly in the regional power and CBET Projects in the South Asian Region.

2.4 Overall Approach and Methodology

Figure-2 below represents the task-wise approach and methodology undertaken to carry out the assignment/study.

Figure 2 Overall Approach of the Study

The overall approach has been analytically driven and is based on the available information with us and from various published sources. The analysis has been used to recommend specific inputs for the regional guidelines and framework for investments in CBET.

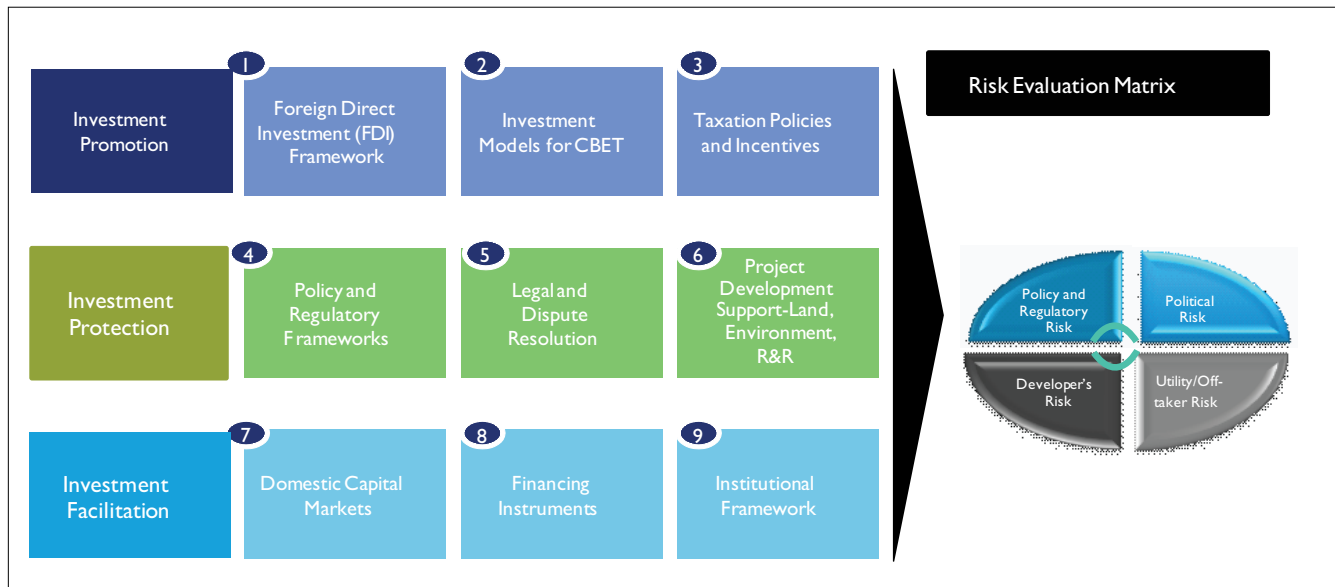
1. Task 1: As-Is Mapping of Investment Trends

The task involved a review of existing studies and literature to undertake the gap analysis in the current investment scenario in respective geographies. A detailed assessment of the country specific power sector that included review of the key characteristics of each SACs in terms of resource mix, installed capacity, untapped potential, current demand and supply deficits, and electricity access levels. Further, the investment size and opportunities for each market was identified along with the FDI trends. A comparative market attractiveness analysis was undertaken to analyse the stages of evolution of various country markets in the region.

2. Task 2: Impact Assessment of Investment Framework

The task involved a detailed analysis of the relevance of policy and regulatory regime for investment in the power sector and its impact on the overall investment scenario in South Asian Power Projects and CBET. The investment framework for the electricity sector in the SACs and at the regional level has been assessed based on the following key parameters (Figure-3).

Figure 3 Evaluation Framework



Investment promotion in the country as well as for cross border infrastructure covers FDI facilitation providing transparency and predictability for attracting foreign investments and investment models focused on the domestic market and various incentives and tax benefits extended for investments in the electricity infrastructure sector.

The investment protection mechanism comprises of policy and regulatory frameworks, the legal protection extended to investments for expropriation, changes in laws, contract enforcement, dispute resolution, guidelines for the project development support for getting clearances in procurement of land, specifying environmental safeguards and managing rehabilitation and resettlement issues.

Investment facilitation includes developing the associated eco-system for mobilising investments like strengthening domestic capital markets, developing financing instruments, support through institutionalised mechanisms and processes, both at the country and regional level.

The country-wise analysis has been undertaken for the above parameters and a comparative matrix has been prepared to ascertain the level of evolution and preparedness for investments in CBET projects in the region.

The impact assessment reviewed a number of indicators, which assessed the investor sentiment as well as areas that require policy interventions for creating an enabling environment for increasing investment. The impact has been assessed in terms of:

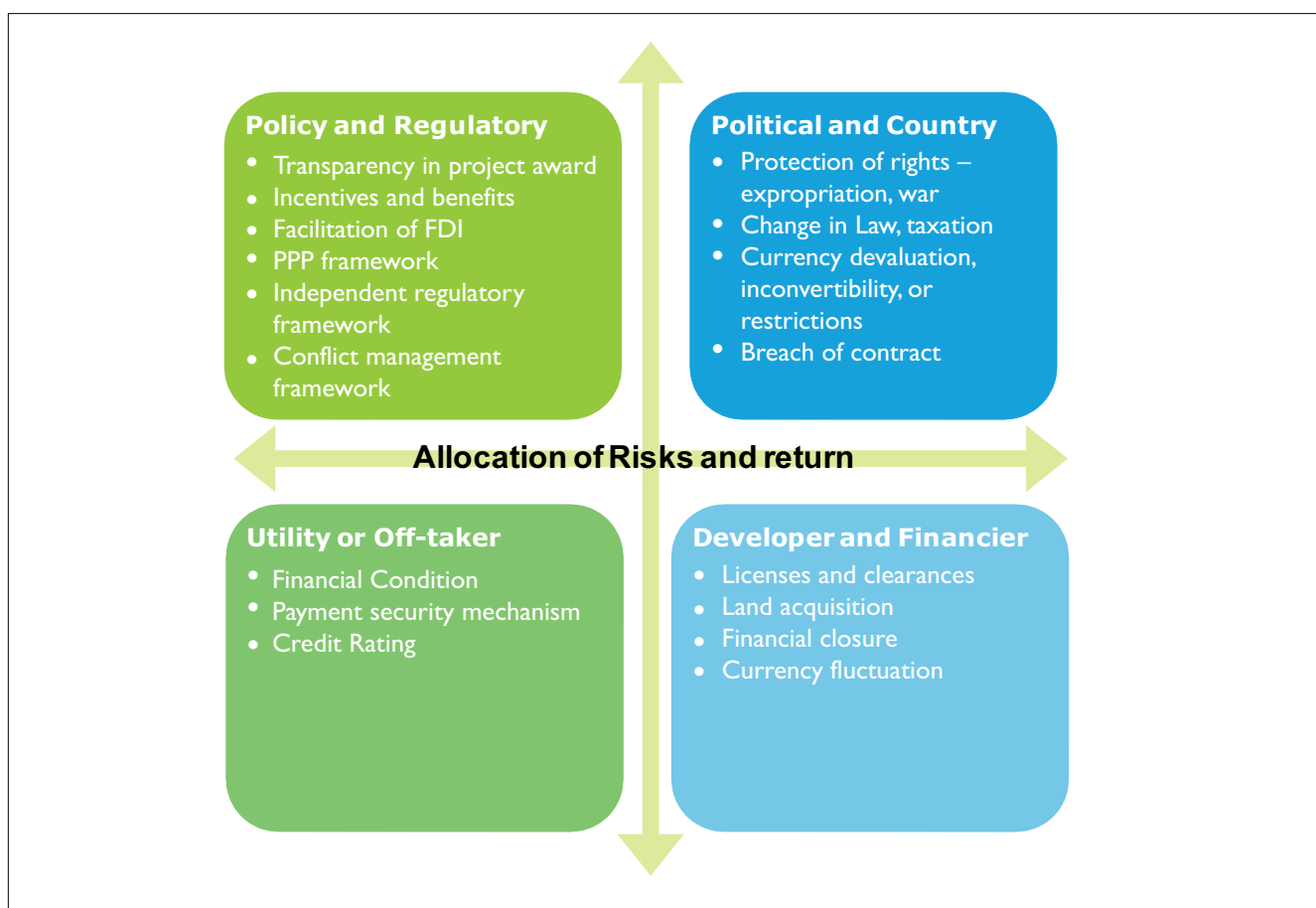
- FDI investment in power projects
- Generation capacity addition against potential and targeted capacity
- Executed and planned CBET projects in SACs
- Transmission and distribution network status vis-à-vis the present and planned capacity
- Investments under PPP mode

- Expansion of transmission capacity
- Growth of new players in the industry
- Investment in regional power projects
- Trends in cross-border investment flow between SACs.

3. Task 3: Risk Assessment

This task involved identifying the risks in investing in power projects and CBET projects in SACs. In the context of the development of cross border projects, generation and transmission, a risk assessment matrix has been used which covers the parameters provided below (Figure-4).

Figure 4 Risk Assessment Matrix



A detailed SWOT analysis for all the SACs has been undertaken followed by comprehensive stakeholder consultations covering investors, developers, financial institutions, MFI, government and industry bodies, etc.

4. Task 4: International Review

This task involved a detailed review of various international power pools viz. SAPP, West African Power Pool (WAPP), GMS, Nord Pool and Georgia – Turkey and other relevant case studies and examples. The review covered the following specific elements.

- Evolution of CBET and frameworks adopted.
- Evolution of key policy and regulatory provisions like, FDI policies, investor incentives, investment protection schemes, laws and regulations on environment, land acquisition, competition laws, trade policies, corporate tax regimes, royalty regimes, contract enforcement and dispute settlement mechanisms, investment promotion and facilitation, rehabilitation and resettlement etc.
- Institutional mechanisms adopted for investments at the regional level.
- Other mechanisms put in place for attracting private sector participation/investors and the other stakeholders.
- Specific issues/risks faced and mitigation measures adopted.
- Lessons for South Asia covering the key changes required.

5. Task 5: South Asia Experience in Development of Energy Resources & Associated Transmission Infrastructure

The experience from South Asian CBET and development of the hydropower sector in the region has been reviewed and key learnings are included in the regional investment framework.

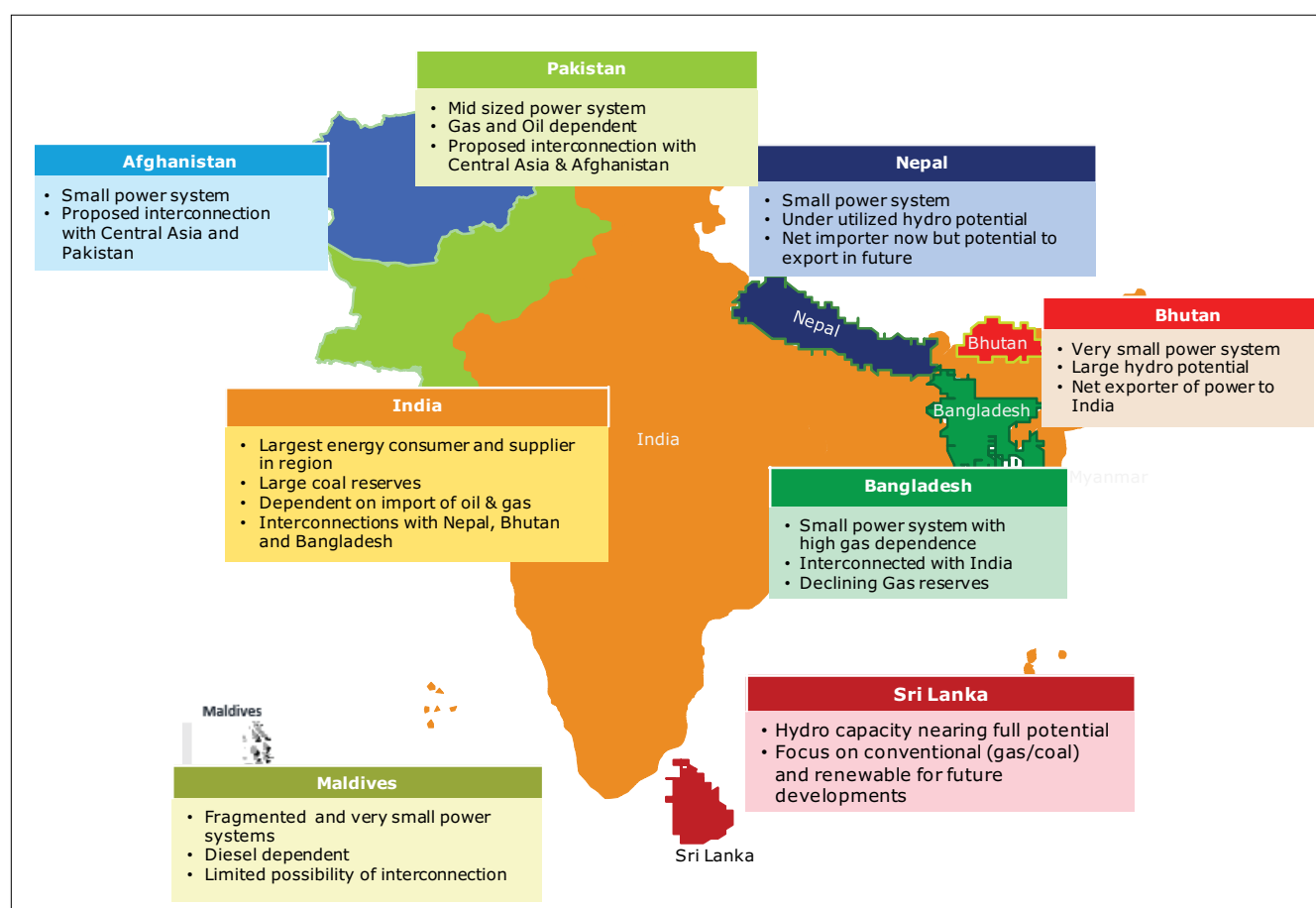
6. Task 6: Develop Policy Guidelines and Investment Framework

Based on the review and analysis in the preceding tasks, the investment policy framework and guidelines were identified. Further, an outline of country-wise doable strategies and a roadmap to incorporate them in the regional investment framework to promote CBET in the region was made.

3. Cross Border Electricity Trade (CBET) in South Asia

The South Asian region has diverse natural resources ranging from large coal reserves in India, gas reserves in Pakistan and Bangladesh, hydropower potential in Nepal and Bhutan, and non-conventional resources (solar and wind) in India, Maldives and Sri Lanka. The following Figure-5 provides a snapshot of the key resources and interconnections in the region.

Figure 5 Power System Profile for South Asia



The following Table-I provides the resource potential of key natural resources in South Asia:

Table I Resource Potential in South Asia

Resources Potential	Coal Million Tonnes	Oil Million Barrels	Natural Gas TCF ⁷	Biomass Million Tonnes	Hydropower Gigawatts
Afghanistan	440	-	15	18-27	25
Bangladesh	884	12	8	0.08	0.33
Bhutan	2	-	-	26.60	30.00
India	90,085	5,700	39	139.00	150.00
Maldives	-	-	-	-	-
Nepal	-	-	-	27.04	83.00
Pakistan	17,550	324	33	-	59
Sri Lanka	-	150	-	12	2
Region Total	108,961	5,906	95	223	349.33

Source: Asian Development Bank 2012

In Afghanistan, Nepal and Bhutan the dominant fuel for power generation is hydropower, in Bangladesh it is gas and in India and Pakistan it is coal. Maldives is significantly dependent on the import of oil for meeting its power needs. Further, countries like India, Sri Lanka, Pakistan and Maldives are increasingly making an effort to harness their renewable energy potential.

3.1 Key Energy Indicators

The South Asian region is a substantially power deficit region. The region's demand for energy is high and potential for growth is also high for the following reasons:

- Increasing GDP per capita would contribute to increasing the power demand per person.
- Increasing coverage of electricity access will result in requirement of more power.
- Increasing industrial activity would also result in a growth in power demand.

The following Table highlights the main parameters for energy status.

Table 2 South Asia Electricity Sector Profile

	Afghanistan	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka
Installed Capacity (GW) ⁸	0.6	8.6	1.5	298	0.06	0.8	23	3.4
Per Capita Consumption (kwh) ⁹	130	293	1,619	765	707	128	450	526
Access to Electricity (% of population) ¹⁰	43%	62 %	75.6%	78.7%	100%	76.3%	69.3%	94%

Source: World Bank Database 2016, SREP Report

⁷Trillion Cubic Feet

⁸Base Year 2015

⁹Base Year 2013

¹⁰Base Year 2012

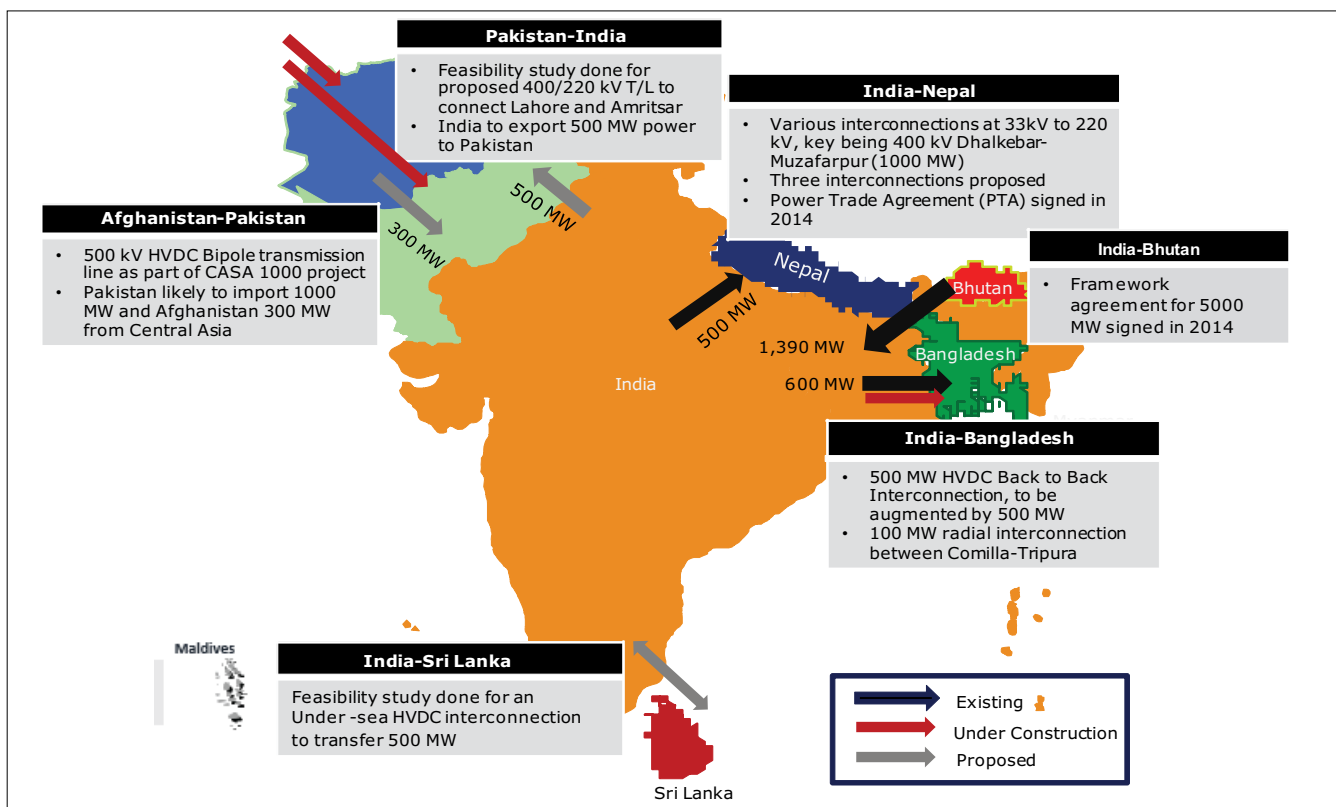
India has the highest installed capacity in the region while Nepal and Afghanistan have the lowest installed capacity in the region at 0.8 GW and 0.6 GW. The level of electricity access (though low as compared to other regions in the world) has improved over the past few years with countries like Sri Lanka reaching 94 per cent. But among all the countries of the South Asian region, Afghanistan has the lowest level of electricity access i.e. ~43 per cent. Additionally, the per capita electricity consumption in the SACs is much below the world average. This has been hampering the region's growth. The SACs have been making efforts at their respective country levels to meet the demand supply gap and increase electricity access levels. Progress has been relatively slow due to factors like geographical constraints (rural areas/areas in remote locations), non-availability of adequate generation and transmission infrastructure facilities, fuel constraints etc.

3.2 Regional Cross Border Electricity Trade

The current electricity trade between the SACs is in the form of bilateral trade and is largely based on MoUs, agreements and treaties amongst the SACs. As on date, the maximum quantum of electricity trade is between India and Bhutan (1,350 MW) followed by India - Bangladesh (600 MW), India - Nepal (500 MW). Additionally, Pakistan imports electricity from Iran and Afghanistan imports from Uzbekistan, Tajikistan, etc. The region is also likely to benefit from Pakistan and Afghanistan's interconnection with Central Asian countries under the CASA 1000 project. The interconnections between India - Pakistan and India - Sri Lanka are yet to be established, though feasibility studies have been undertaken.

The following Figure-6 shows the current and planned Cross Border Interconnections in South Asia.

Figure 6 Current and Planned CBET in South Asia



The country-wise assessment of the energy sector in South Asia is provided in Annexure 2.

4 Investment Framework for CBET in South Asia

The current investment scenario in South Asia has been analysed from the broad macro-economic perspective as well as the potential areas, which impact the investments in the power sector.

4.1 Regional Investment Scenario

4.1.1 Macro-economic parameters

The macro-economic scenario in South Asia is quite diverse with India being the largest and most stable economy in the region. Pakistan and Bangladesh are mid-sized economies in the region while Afghanistan and Nepal's economy size is around USD 20 billion. Maldives and Bhutan are relatively smaller economies worth approximately USD 3 billion and approximately USD 2 billion respectively. The country-wise analysis of key macro-economic parameters is provided in the Table-3 below.

Table 3 Macro-economic Parameters of SACs

(Base Year - 2014)

	GDP (USD Billion)	GDP Growth (%)	GDP per Capita (Current USD)	Population (Mn)	Exports (% of GDP)	Imports (% of GDP)	Corporate Tax Rate	Interest Rate
Afghanistan	20.0	1.3%	633.5	27.1	NA	NA	20.0%	NA
Bangladesh	172.9	6.0%	1,086.8	159	19.0%	25.5%	27.5%	7.1%
Bhutan	2.0	5.5%	2,560.5	0.77	36.3%	57.3%	38.7%	NA
India	2,048.0	7.3%	1,581.5	1295	23.2%	25.5%	34.6%	8.5%
Maldives	3.1	6.5%	7,635.5	0.4	108.2%	89.3%	NA	4.6%
Nepal	19.8	5.4%	701.7	28.12	11.6%	41.2%	NA	6.0%
Pakistan	243.6	4.7%	1,316.6	185	12.3%	18.7%	33.0%	8.1%
Sri Lanka	78.8	4.5%	3,819.2	20.77	NA	NA	28.0%	13.9%

Source: World Bank Database

4.1.2 Trade and Investment Trends

The current level of intra-regional movement in trade, investments and capital amongst the SACs shows (table-4) the low involvement of the countries within the region.

Table 4 Trade and Investment : Movement in Trade, FDI, Capital

South Asia	Movement in Trade & Investment		Movement in Capital	
(2015)	Trade	FDI	Equity Holding	Bond Holding
Within sub-region (South Asia)	5.5%	0.6%	0.9%	2.1%
Across sub-regions (Asia)	32.2%	38.3%	22.7%	10.6%
With the rest of the world	62.3%	61.1%	76.5%	87.3%

Source: Asian Economic Integration Report, 2016

4.1.3 Key investment indicators

India has the best sovereign credit rating in the region and has been rated BBB- by S&P and falls under “Lower Medium Investment Grade”. Bangladesh has been identified as “Non-investment grade, speculative” category of investment with BB- rating by S&P. Pakistan and Sri Lanka both have been assigned the “Non-investment grade, highly speculative” category of investment and assigned B- and B+ ratings respectively by S&P. Afghanistan, Bhutan, Maldives and Nepal are not covered by S&P and their status is “not rated”.

Debt to GDP ratio is a warning sign for Bhutan as its debt has crossed the value of its GDP. Though most of Bhutan’s debt is in hydropower and the non-hydro debt is only 25 per cent as per the 2015 national budget report. The debt to GDP ratio of the other countries have, is under control. Afghanistan has the least debt to GDP ratio at 6.4 per cent and most of it comes from multilateral donor agencies.

Maldives has been able to attract the maximum FDI in the region and most of it is concentrated in the tourism industry. Nepal has the least FDI to GDP ratio in the region, which could be improved by addressing underlying issues, which discourage FDI investment.

Bhutan is the leading country in the region for capital investment and building new assets. Most of its investments are made by debt financing and give rise to high growth at the same time caution needs to be taken so it does not default on its ever-increasing loan size.

Table 5 Key Investment Indicators

(Base Year - 2014)

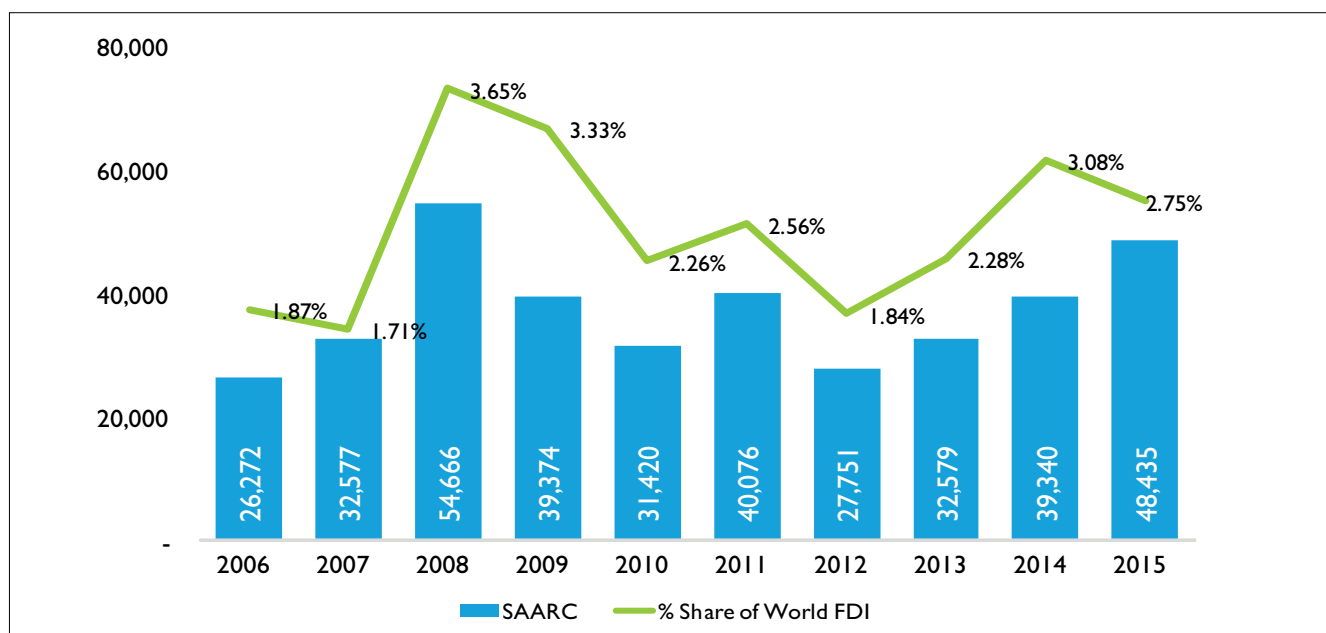
	Debt to GDP (%)	FDI (% of GDP)	Capital Investment (% of GDP)	Government Spending (% of GDP)
Afghanistan	6.4%	0.2%	18.2%	12.8%
Bangladesh	33.3%	1.4%	28.9%	5.3%
Bhutan	115.9%	0.4%	57.8%	16.9%
India	65.0%	1.7%	31.6%	11.4%
Maldives	76.9%	11.9%	NA	NA
Nepal	23.4%	0.0%	36.8%	11.1%
Pakistan	64.7%	0.7%	14.9%	10.8%
Sri Lanka	76.7%	1.2%	NA	13.1%

Source: World Bank Database

4.1.4 Foreign Direct Investment (FDI)

The FDIs in the South Asian region are some of the fastest growing in comparison to other trade blocks. The FDI has grown at a rate of 20 per cent for the South Asian region, as compared to around 12 per cent for ASEAN and COMESA, indicating that the regional market is growing as a destination for investments. The FDI inflow into the countries in South Asia is shown below (figure-7).

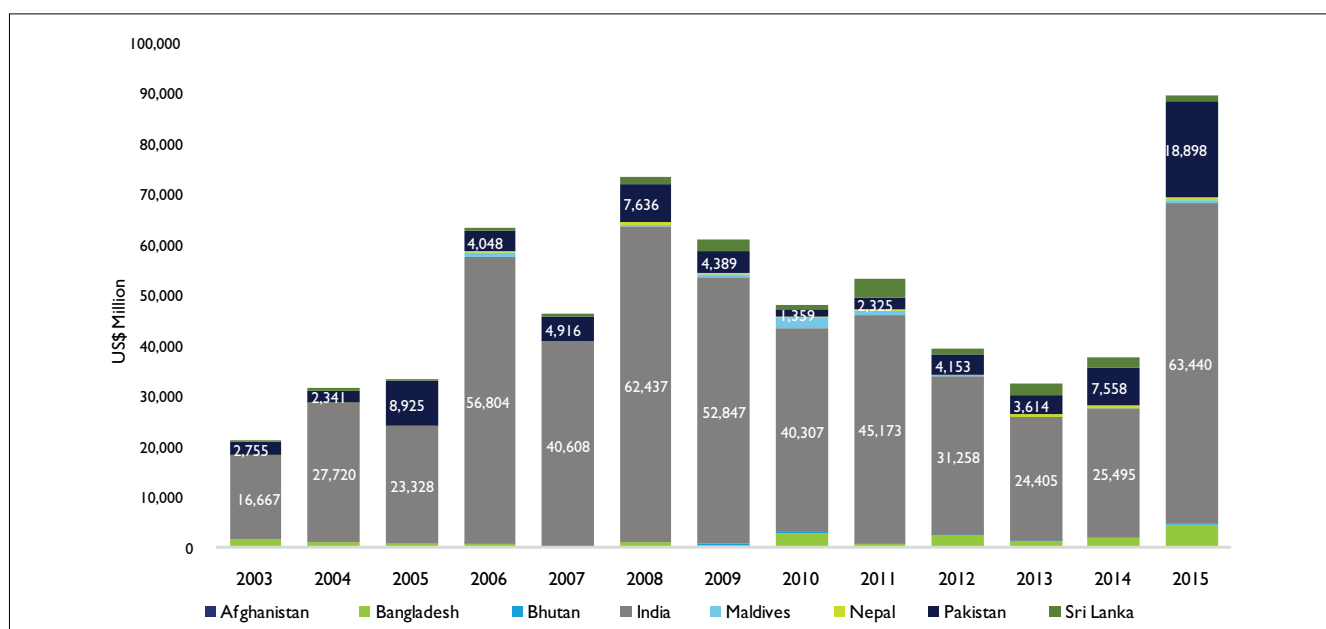
Figure 7 FDI Inflows in South Asia (USD Million)



UNCTAD Trade Data, 2016

The announced greenfield FDI projects in SACs have increased at a CAGR of 13.93 per cent for the period 2003 – 2015. The highest increase has been in Pakistan, which comprised of 21.12 per cent of the total announced projects in 2015. India continued to be the most attractive market for new investments and had the highest share (70.9%) in the region in 2015. The following Figure-8 shows the value of announced Greenfield FDI by destination.

Figure 8 Greenfield FDI Projects in South Asia in 2015 (USD Million)



Source: UNCTAD Trade Data, 2016

4.1.5 Ease of doing business in South Asia

The following Table illustrates the SACs' ease of doing business ranking for the year 2015 and 2016. According to the latest ranking, Bhutan is the best place for business friendliness and has jumped from the 125th rank in 2015 to 71 in 2016. Bhutan is followed by Nepal and Sri Lanka. Afghanistan is rated the last in the region but has shown an improvement over its 2015 ranking.

Bhutan has the best rating in the region for 2016 because it has scored best in the region on 5 out of 10 parameters used for calculating ease of doing business. Bhutan is the best place in the region viz. paying taxes, trading across the border, enforcing contracts, registering property and getting electricity. Afghanistan has the worst rating in the region though it has the best rating in the region for starting a business.

Nepal is second best in the region with favourable policies on registering property, trading across borders and resolving insolvencies. India has performed best on getting credit and protecting minority interests while it is the worst in the region on starting a business. In Pakistan dealing with construction permits and protecting minority investors are favourable (2nd best in region) but it is the worst in the region for paying taxes.

Bangladesh has significant potential for attracting significant investment in the power sector, but ranks (table-6) low on ease of doing business, for which it is just above Afghanistan.

Table 6 Ease of Doing Business Ranking

Countries	Rank (2015)	Score	Rank (2016)	Score
Afghanistan	183	41.16	177	40.58
Bangladesh	173	46.84	174	43.10
Bhutan	125	57.47	71	65.21
India	142	53.97	130	54.68
Maldives	116	58.73	128	55.04
Nepal	108	60.33	99	60.41
Pakistan	128	56.64	138	51.69
Sri Lanka	99	61.36	107	58.96

Source: World Bank Report, 2016

4.2 Investments in CBET in South Asia

4.2.1 Current status

The development of cross-border electricity infrastructure has been attempted through various investment models under the bilateral arrangements between the two neighbouring countries.

I. India - Bhutan

The majority of generation interconnection projects between India and Bhutan have been executed on the basis of the Inter-governmental Agreement between the two countries. Dagachhu Hydropower Project (HPP) was the first to be built under a Joint Venture (JV) Agreement involving Druk Green Power Corporation, a government owned generation company in Bhutan, and Tata Power, a private owned generation company from India. In addition, Bhutan has plans to develop five projects on a PPP basis, similar to Dagachhu HPP. The Inter-Governmental Agreement with India in 2014 was to develop

four HPPs of around 2,100 MW capacity through the JV route and these projects are being developed under JV agreements between DGPC from Bhutan and Indian public sector undertakings like SJVNL (Satluj Jal Vidyut Nigam Ltd.), THDC Ltd (Tehri Hydro Development Corporation Limited), NHPC Ltd (National Hydro Power Corporation Limited), etc.

The major transmission interconnections between the two countries for evacuation of generation from Tala HPP, has also been developed as a JV between two Indian entities, the government owned Power Grid Corporation of India Limited (PGCIL) and private sector owned Tata Power Limited. The rest of the interconnections have been built by PGCIL.

2. India - Nepal

The India – Nepal transmission line (Dhalkebar-Muzaffarpur) has been developed on a PPP mode. Two JV companies have been established for the respective countries.

- Power Transmission Company Nepal (PTCN) for Nepal with shareholdings NEA (50%), PGCIL (26%), HIDCL of Nepal (14%), IL&FS (10%).
- Cross Border Power Transmission Company Ltd. for India with shareholdings IL&FS (38%), PGCIL (26%), SJVNL Ltd (26%) and NEA (10%).

In Nepal, there are two export oriented HPPs, which were awarded to developers in 2014 and which will generate and sell power to the Indian utilities. Indian companies selected through a competitive bidding process are developing both the projects.

- 900 MW Arun III with an estimated cost of US\$ 825 million was awarded to SJVNL Ltd.
- The 900 MW Upper Karnali project with an estimated cost of US\$ 1.4 billion was awarded to GMR Ltd., a private developer.

3. India - Bangladesh

Bangladesh – India cross border trade has increased since the inception of the 400 kV T/L Baharampur – Bheramara with HVDC B/B Station project in 2011. The first phase was commissioned in 2013. The India portion of the transmission line and associated infrastructure has been built and financed by PGCIL India while the Bangladesh portion of the project has been developed by Bangladesh Power Development Board (BPDB) with funding support from Asian Development Bank (ADB). The second phase of the project for augmenting an additional 500 MW capacity is currently under implementation and is likely to be commissioned in 2018.

Bangladesh and India are also jointly developing the 1,320 MW Maitree Super Thermal Power Project in equal partnership by BPDB, Bangladesh and NTPC, India. The project has been financed by India's EXIM Bank, which has provided the loan at a concessional rate to the project. The project has got tax exemption in Bangladesh for a period of 15 years.

A summary of the CBET projects in the region is given below (Table-7).

Table 7 CBET Projects in South Asia

CBET Project	Description	Estimated Cost (USD \$ Million)	Financing Support	Mode of Development
Nepal – India	400 kV D/C Dhalkebar-Muzaffarpur T/L	137	IDA	Joint Venture Companies
	Arun 3 Hydropower Project (900 MW)	825	Financial closure is due	Private developer (SJVNL)
	Upper Karnali Hydropower Project (900 MW)	1,400	Financial closure is due	Private developer (GMR Ltd)
Bhutan – India	Tala Transmission Line - Five 400 kV and one 220 kV D/Ct lines, 1,200 km, 3,000 MW capacity	75	IFC	PPP
Bangladesh – India	400 kV T/L Baharampur – Bheramara with HVDC B/B Stn	US\$ 332 million	ADB	Multi-lateral funding for the interconnection
	1,320 MW Maitree Super Thermal Power Project		EXIM Bank, India	Joint Venture

4.2.2 Key challenges in CBET projects in South Asia

The financing of future CBET projects is likely to be driven by the perceived risk profile of the projects. The availability of reliable pre-feasibility and techno economic feasibility of the project; mitigation of the project development risks (land acquisition, hydrology studies, clearances, R&R, etc.); commercial arrangements like long term regulated PPAs; off-takers' financial creditworthiness; management of project financing etc., prior to offering non-recourse or limited recourse financing etc., are some of the many factors that determine the risk profile of the project and hence the investment.

Although public finance plays a major role in infrastructure development, national governments would face difficulties in financing all the projects alone, given the high up-front costs incurred for capital investment.

With the existing plans for development/ proposed generation and transmission projects, it is clear that private sector participation will be imperative in the coming years. It is becoming essential for all the countries in the region to clearly define and lay down their policies and regulations so that investments in the electricity sector could be secured to give confidence to the project promoters, lenders and other stakeholders.

Support in the form of requisite guarantees, PPAs between the sellers and buyers, TSAs, robust and transparent dispute resolution mechanisms give comfort to the lenders. Building the proposed transmission links and export oriented projects in the region would also need strong commitment from the governments in the region, as private sector investment will flow only after the investors feel confident about the commitment that the concerned governments exhibit in implementing these projects and the financial institutions too would look at these aspects positively.

4.3 Investment Framework in South Asian Countries

The investment framework for the electricity sector in the SACs and at the regional level has been assessed based on the following key parameters.

- Investment Policy and Regulatory Framework
 - Transparency and predictability of policy in award

- Incentives and tax breaks
- Land usage, environmental protection
- Legal Protection of Rights
 - Expropriation
 - Change in laws
 - Dispute resolution and contract enforcement
- International investment agreements – Bilateral, regional and international trade agreements and treaties
- Capital markets
- Investment facilitation
 - FDI - Screening process, registration, transfer of funds
 - Public private participation framework
 - Capital markets

The country-wise analysis below was undertaken for the above parameters and a comparative matrix was prepared to ascertain the level of evolution and preparedness for investment in CBET projects in the region.

4.3.1 Afghanistan

The market for grid connected power infrastructure is still largely that of a monopoly, with the state-owned utility (DABS) currently responsible for a vast majority of power assets. The market is far less monopolistic in renewable energy (RE) services. While RE projects are still predominantly grant-funded, development partners both directly contract with private sector operators as well as commission projects through the government. There is some private sector activity in renewables and off grid initiatives like site assessment, equipment manufacturing, construction, and O&M. There are also private sector players operating pay-for-power systems from diesel generation but not in the renewable sector. Hence, the cost recovery efforts are nascent and financial sustainability of projects could be a concern for private investments. The interventions under World Bank's Scaling up Renewable Energy Program (SREP) initiative are targeted at catalysing private sector involvement in RE sectors (e.g. Municipal Solid Waste (MSW) to energy operation, mini-grids, geothermal survey).

I. Policy, Regulatory and Legal Framework

The government in Afghanistan is making efforts to create an enabling environment for private sector participation in the energy sector. The Private Investment Law focuses on private sector participation, both domestic and foreign. The Rural Electrification Policy similarly encourages private sector involvement, particularly in areas that are likely to be unserved by the grid, with a view towards providing energy for commercial activity.

The governance structures for private sector participation are being developed and the process has been streamlined through guidelines while the legal basis for IPPs are in an advanced stage of development. An independent regulator is in place. The creation of a robust environment for the private sector is being taken up through programmes initiated by donor/multi-lateral funding agencies like USAID's Afghanistan Clean Energy Programme (ACEP), World Bank's SREP, which are targeted at further contributing to capacity building both with private sector implementation and public sector management.

The Private Investment Law of 2005 (PIL) permits investments in nearly all sectors of the economy with the exception of nuclear power and a few other specified areas. The High Commission on Investment (HCI) is responsible for investment policy making. Investment in certain sectors including infrastructure (defined to include power, water, sewage, waste-treatment, airports, telecommunications, and health and education facilities) is subject to special consideration by the HCI, in consultation with relevant government ministries. Direct investment exceeding USD 3 million requires HCI's approval of the investment application. The HCI has the authority to limit the share of foreign investment in some industries, specific economic sectors, and specific companies, but in practice, investments upto 100 percent foreign owned are allowed. The PIL authorises HCI, with the agreement of the relevant ministries, to provide, on a case-by-case basis, different terms from those generally applied to investments.

2. Land Acquisition, Environmental Protection, Rehabilitation & Resettlement

The Afghan Constitution and the PIL prohibit foreign ownership of land. There have been a number of land reforms since 2009, the most notable of which was the establishing of Arazi as the country's single source for managing all land-related issues. While Arazi is entrusted with administering the leasing of government land to investors, it has limited resources and a vast majority of the land in the country continues to be untitled (or inaccurately titled) and unregistered. This in turn further complicates the Afghan state's ability to resolve land disputes, particularly in rural settings. The private sector is dependent on mortgages to obtain formal capital, lease private commercial land, and sell or lease (serviced industrial) state land. The absence of clear land and property rights and corresponding enforcement is a serious impediment to private sector growth. While foreigners are not required to secure Afghan partners, most foreign firms prefer to work with an Afghan partner.

The Land Expropriation Law, 2005 (LEL), addresses the land expropriation process and legal rights in relation to the process. For public interest purposes, such as construction of public infrastructure and acquisition of land with cultural or scientific values, land of higher agricultural productivity, or large gardens, the law provides that:

- The acquisition of a plot or part of it for public purpose is decided by the Council of Ministers and is compensated for at a fair value based on current market rates (Section 2)
- A person whose residential land is subject to acquisition will receive a new plot of land of the same value. He has the option to get residential land or a house on government property in exchange, with proper procedures.
- The value of orchards, vines and trees on land under acquisition shall be determined by competent officials of the local body (Section 16).

The LEL does not require adequate consultation with affected parties and simply requires that declaration and notice be given about temporary use of land or acquisition or resumption of land (lease) and the purposes for which it is required. There is no requirement of preparation of a documenting process, consultations with affected parties or any specification of procedure for acquisition and compensation. Also, the LEL does not entitle compensation to displaced persons without title nor provides compensation for income losses caused by Land Acquisition and Resettlement (LAR) process.

Afghanistan currently does not have a country specific resettlement policy. The safeguard policies of the donor or multi-lateral agencies, which fund large projects, generally apply.

3. Dispute Settlement and Arbitration

Afghanistan's legal system consists of Islamic, statutory and customary rules while the Constitution is the supreme law of the land. The judiciary system is composed of the Supreme Court, the Courts of

Appeal and the Primary Courts. The overall dispute resolution mechanism and the application of rule of law are still weak and the majority of legal disputes are still resolved outside the formal justice system.

According to Article 26 of the PIL of Afghanistan, the disputes between foreign and domestic investors versus the Office of Investment and government officials may be directly resolved in an amicable manner or alternatively, the parties can settle their dispute according to the provisions of the Washington Arbitration Regulations of March 18, 1965 or in accordance with the United Nation's Judiciary Laws for International Commerce.

The contract law in Afghanistan is set out in the Afghanistan Commercial Code 1955 and the Afghanistan Civil Code 1977. Under these codes, parties are generally free to enter into and perform a contract on any commercial subject matter within the law, public policy, or Sharia. In 2005, Afghanistan became a signatory to the Convention on the Recognition and Enforcement of Foreign Arbitral Awards (1958 New York Convention). Since 2005, Afghan law has expressly recognised alternative dispute resolution provisions. In October 2014 the Afghanistan Centre for Dispute Resolution (ACDR) was established with the support of USAID and Commercial Law Development Program (CLDP). It aims to provide alternative dispute resolution services for domestic and foreign firms in Kabul. Lowering the costs of resolving disputes and reducing the risk of arbitrary adjudication of disputes, could better protect the investor's assets and rights.

Under the PIL and the Commercial Arbitration Law of 2007 (Arbitration Law), the parties can agree to have foreign law govern their contract and agree to have their disputes resolved through arbitration or other mechanisms inside or outside of Afghanistan, and the Afghan courts must enforce any resulting award or agreement.

4. Foreign Direct Investment

Foreign investors need to register with the Afghan Investment Support Agency (AISA) and also renew it annually. Domestic investors are required to have a business license under the Afghanistan Companies Act. In practice this means that in addition to establishing a business they must also register with either Afghanistan Investment Support Agency (AISA) or Ministry of Commerce and Industry (MoCI). The license renewals are costly and time consuming. As per Article 11 the PIL allows the government to grant tax waivers, which can be short term, medium term or long term.

Private investors have the right to transfer capital and profits out of Afghanistan, including those for offshore loan debt service. There are no restrictions on converting, remitting, or transferring funds associated with investment, such as dividends, return on capital, interest and principal on private foreign debt, lease payments, or royalties and management fees, into a freely usable currency at a legal market clearing rate. The PIL states that an investor may freely transfer investment dividends or proceeds from the sale of an approved enterprise abroad.

The PIL allows for expropriation of investments or assets by the government on a non-discriminatory basis and only for the purposes of public interest. The law stipulates that the government shall provide prompt, adequate, and effective compensation in conformity with the principles of international law, equivalent to the fair market value. In cases of investment in a foreign currency, the law requires compensation to be made in that currency. The government may also confiscate private property to settle bad commercial debts. According to the PIL, investors with an ownership share of more than 25 percent may challenge the expropriation.

5. PPP Framework

In Afghanistan, the first step towards the development of a PPP framework was taken in 2008 with the introduction of the Law on Public Procurement. It provides guidelines for awarding contracts for private investment in the construction and operation of public works and other service concessions. However, the maturity of the PPP process has been limited except for the formation of a central PPP unit under the Ministry of Finance. The key issues facing PPP development are:

- The improvement in the legislative framework aimed at strengthening PPPs is still at the initial stage. Key amendments to the procurement law are still pending and need to be addressed immediately.
- Owing to ongoing fiscal constraints and risks involved in investing in Afghanistan, at least initially, PPP development in Afghanistan will to a great extent depend on support from multilateral funding agencies.
- Lack of significant PPP experience and institutional and individual capacity.

6. International Investment Agreements

Afghanistan has signed more than 30 bilateral trade and investment agreements/ memoranda of understanding. In 2004, Afghanistan signed a Trade and Investment Framework Agreement (TIFA) with the United States and in 2010, Afghanistan and Pakistan signed the Afghanistan Pakistan Transit Trade Agreement (APTTA). Afghanistan is a member of the Economic Cooperation Organization (ECO), the South Asia Free Trade Area (SAFTA), and the South Asian Association for Regional Cooperation (SAARC), and of the Central Asian Regional Economic Cooperation (CAREC). Afghanistan became a member of the World Trade Organization in Dec 2015.

7. Capital Market and Investment Promotion

The capital market in Afghanistan is still not developed as a majority of the population remains outside the formal banking sector. Afghans continue to rely on an informal trust-based process to access finances and transfer money, due in part to unfamiliarity with a functioning banking system and limited access to banks in rural areas. Still, finance is Afghanistan's second-largest service industry and is potentially an important driver of private investment and economic growth. As of December 2013, seventeen commercial banks were operating in Afghanistan, with total assets of approximately USD 4.07 billion.

4.3.2 Bangladesh

I. Policy, Legal and Regulatory Framework

The Government of Bangladesh introduced the Private Sector Power Generation Policy (PSPGP) 1996. This marked the launch of private sector projects in the power sector with the 450 MW Meghnaghat and 360 MW Haripur Power Projects. The policy for encouraging partnerships with the private sector continued through the 2000s with the introduction of Private Sector Infrastructure Guidelines 2004 (PSIG). The government approved the PSPGP in 2006 to increase private sector participation in the power generation sector. As a result, the share of private power supply in terms of installed capacity increased from 26 per cent in FY2008 to 46 per cent in FY2015. The Bangladesh Renewable Energy Policy, 2008 was notified by the government to scale up grid connected renewable energy. The policy identifies renewable energy playing a significant role in Bangladesh's power sector mix and has also strengthened the institutional structure for the development of renewable energy by establishing the Sustainable Energy Development Agency (SEDA).

In 2010, due to critical power shortages and chronic delays in implementing power projects, the government amended procurement requirements to allow unsolicited bids and expedited the approval of power generation projects. The PPP Policy 2010 replaced the PSIG 2004 and updated the policy

framework to provide a transparent regulatory and procedural framework. The establishment of the Bangladesh Energy Regulatory Commission (BERC) in 2003 improved the power tariff setting mechanism and the tariffs are being reviewed fairly regularly as per the BERC guidelines. BERC is also empowered to regulate the tariff for all the generating stations including the renewable energy power plants. The key features of the important policy and regulatory initiatives are provided below (Table-8).

Table 8 Bangladesh: The Key Features of the Important Policy and Regulatory Initiatives

Policy/Act	Key Features
Private Sector Power Generation Policy (1996)	• Attract private sector investment in the energy sector to meet growth targets • Strive to have energy meet the needs of economic growth in Bangladesh • Optimum development of indigenous energy sources • Promote sustainable utility operations
National Energy Policy (1996)	• Rational use of energy sources and environmentally friendly development of renewable energy • Promote public and private participation in the sector, and develop a regional energy market to ensure energy security • Goal of total electrification by 2020 • Ensure reliable and affordable energy supply
Bangladesh Electricity Regulatory Commission (BERC), 2003	• The Commission has been established with the vision “To make provisions for the establishment of an independent and impartial regulatory commission for the energy sector”
Private Sector Infrastructure Guidelines (2004)	• Established procedures to identify private infrastructure projects • Set guidelines for private sector investors and the GoB for the procurement and implementation of private infrastructure projects • Set guidelines for monitoring and expediting the implementation of private infrastructure projects
Policy Guidelines for Power Purchase from Captive Power Plant (CPP) (2007)	• Plan to lessen the gap between supply and demand for energy by utilising the surplus capacity of CPPs and allowing electric utilities to purchase electricity from CPPs
Remote Area Power Supply System (RAPSS) Guidelines (2007)	• Guidelines for the implementation of the RAPSS programme, in which private investors are given an area (either on-grid or off-grid) to develop an electricity generation and distribution system, which they then utilise as an utility operator for up to 20 years
Policy Guidelines for Small Power Plants (SPP) (1998, Revised 2008)	• Guidelines to allow for fast-tracking the establishment of SPPs by the private sector for their own electricity needs, and to sell the surplus to others • SPPs are to be developed with a capacity of 10MW or less (larger plants are possible with government permission), and are to be established on a build-own-operate basis.
Policy Guidelines for Enhancement of Private Participation in Power Sector, 2008	• Guidelines to promote further private participation in the power sector, harness competition, ensure optimal use and conservation of country’s limited natural gas resources. • GoB allowed the private sector to: • Set up commercial power plants – to supply large industrial consumers at mutually negotiated tariffs and supply distribution licensees at BERC determined tariffs. • Use transmission and distribution lines of PGCB and distribution licensees.
Quick enhancement of Electricity and Energy Supply (Special Provisions) Act, 2010 (amended in 2016)	• Provides government powers to implement any projects related to the generation, distribution and marketing of power and gas • Allows the government to fast-track energy-sector contracts on an unsolicited negotiation basis without the need to go through a tendering process

Legislation offers incentives for investors such as 100 percent foreign ownership, tax holidays and exemptions, reduced import duties on capital machinery and spare parts, etc. A tax rebate facility for non-resident Bangladeshi investors was also extended to induce investment from abroad. There are a few performance requirements, but generally these do not impede investment.

The Board of Investment (BOI) of Bangladesh is responsible for screening, reviewing and approving FDI in Bangladesh. The BOI is directly supervised by the Prime Minister's office and the Chairman of BOI is ranked equivalent to a Minister. The Government of Bangladesh formed an independent agency in 2011 called the "Bangladesh Competition Commission" (BCC) under the Ministry of Commerce. The BCC does not appear to be functional and all competition-related issues are handled by the WTO Cell of the Ministry of Commerce.

2. Land Acquisition, Rehabilitation & Resettlement

The requisition and acquisition of land by the government is mentioned in Article 42 of the Constitution of the People's Republic of Bangladesh. The government is empowered to acquire land in two ways. First, under Article 42 of the Constitution, the government can acquire, nationalise or requisition land after paying compensation. Second, through the Land Acquisition Law, the well-recognized earliest legislation known as the Act of 1894. The Land Acquisition Act, which has undergone changes since the Act of 1894 and the earlier Acts were replaced with the promulgation of the comprehensive Acquisition and Requisition of Immovable Property Ordinance of 1982. The most important features of the 1982 ordinance: The sole authority is the Deputy Commissioner (DC) who can acquire property if it appears to him that the property is needed for a public purpose or in public interest; however, there is room for people to raise objections against the decision. If there are any complications and if the size of the property is large, then the government is responsible for dealing with the issue. Compensation must be made before the authorities take possession of the property, and the payments should be made within a period of one year from the date of the decision of acquisition. Currently, cash compensation is given for compulsory land acquisition under the 1982 ordinance or within the scope of the law. Land registration has historically been prone to disputes over competing titles, and scarcity of land is a significant investment constraint. Documents affecting title to real property are often not registered, complicating transfer of ownership and collateral agreements.

The Ministry of Environment and Forests (MoEF) is the nodal agency for the planning, promotion, coordination and overseeing of the implementation of environmental and forestry programmes and has been formed under the Environment Conservation Act, 1995.

■ Bangladesh Environment Conservation Act, 1995

- Provide directions and legal bindings for the conservation of the environment, improvement of environmental standards and control and mitigation of environmental pollution.
- First to address the environment in a comprehensive way, establishing the Department of Environment (DoE), Environmental Clearance Certificate, power to make rules, legal action, providing substantive and procedural provisions and declaration of ecologically critical areas.

■ Environment Policy 1992

- Framed in 1992 in line with the general recommendations of the Rio Earth Summit.
- Primarily deals with issues like protection of biosphere, sustainable use of natural resources, reduction and disposal of waste, energy conservation, risk reduction, safe products and services, environmental restoration, informing the people, management commitment and assessment
- Policies were formulated for 15 different sectors.

3. Dispute Resolution and Arbitration

The legal system is characterised by judicial independence, but the legal system is perceived to be slow and weak as far as the enforceability of contracts is concerned. The judicial system does not provide for interest to be charged in tort judgments, which means there is no penalty for delaying proceedings. Dispute settlement is also hampered by shortcomings in accounting practices and in the registration of real property.

Bangladesh is a signatory of MIGA (Multilateral investment Guarantee Agency), OPIC (Overseas Private Investment Corporation) of America and ICSID (International Centre for Settlement of Investment Disputes). MIGA is an agency of the World Bank group which encourages the flow of FDI to, and among, developing member countries by providing guarantees to foreign investors against loss caused by non-commercial risks. MIGA's guarantee protects investors against losses arising from the risks of currency transfer, expropriation and war and civil disturbances. MIGA may only ensure new investment, privatisation and financial restructuring.

International Arbitration Bangladeshi law allows contracts to refer dispute settlement to third country forums for resolution. Bangladesh is also a party to the South Asia Association for Regional Cooperation's (SAARC) Agreement for the Establishment of an Arbitration Council, signed in November 2005, which aims to establish a permanent centre for alternative dispute resolution in one of the SAARC member countries.

4. Foreign Direct Investment

FDI has been allowed in all sectors of the economy except five industries - defence equipment, nuclear energy, forest plantation, security printing and railways. The key incentives and benefits available for the investments in Bangladesh are provided below (Table-9).

Table 9 The Key Incentives and Benefits Available for the Investments in Bangladesh

Description	Features
Corporate tax holiday	• 5 to 7 years corporate tax holiday for selected sectors • Private power companies enjoy corporate income tax exemption for a period of 15 years
Tax exemption	• Tax exemption on royalties, technical knowhow and technical assistance fees and facilities for their repatriation • Tax exemption on foreign loans regarding interest • Tax exemption on capital gains from transfer of shares by the investing company
Remittance treatment	• Remittances of up to 50% of salaries of the foreigners employed in Bangladesh and facilities for repatriation of their savings and retirement benefits at the time of their return
Repatriation	• Facilities for repatriation of invested capital, profits and dividends
Reinvestment	• Reinvestment of remittable dividends would be treated as new investment
Exit	• An investor can wind up an investment either through a decision at the AGM. Once a foreign investor completes the related formalities to exit the country, he or she can repatriate the sales proceeds after securing proper authorisation from the Central Bank.

According to Bangladesh's Central Bank, the country received USD 1.5 billion in FDI in FY 2014. Bangladesh has made gradual progress in reducing some constraints on investment, but inadequate infrastructure, financial constraints, bureaucratic delays, and corruption continue to hinder foreign investment. The lack of effective alternative dispute resolution mechanisms and slow judicial processes impede the enforcement of contracts and the resolution of business disputes.

5. PPP Framework

The regulation of PPPs has improved since the introduction of the 2010 Policy and Strategy for PPP and the creation of a PPP Office (PPPO) under the Prime Minister's Office in Dhaka. Among other responsibilities, the PPPO is tasked with advising and overseeing of PPP projects. For this purpose, the PPPO has been publishing PPP process related and sector specific guidance documents. Another PPP unit based in the Ministry of Finance assesses the financial viability of projects and determines the level of government support.

In 2015, the government announced additional initiatives to improve the PPP environment in Bangladesh. A new PPP Law was approved by the Parliament and enacted on September 16, 2015. Earlier, the only legal basis for procurement existed for goods and services, which proved insufficient for developing infrastructure using private capital. The new PPP Law is aimed at streamlining the formulation and execution of PPP projects. It has also expanded the definition and process of government procurement to include concessions. The PPP Law also provides for the establishment of a PPP Authority overseen by a Board of Governors. The PPP Authority will, among other tasks, develop policy, guidelines and standard documents, appoint consultants and advisors, provide approvals, and develop capacity within ministries and agencies by providing training.

Following the enactment of the new PPP Law, the PPPO is planning a programme to further strengthen support for the structured operationalization of PPPs in Bangladesh. The programme will be based on several components including the development of a policy framework, strengthening of institutional capacity, building of a project pipeline and the improvement of the investment climate.

6. International Investment Agreements

Bangladesh is part of regional free trade agreements including Asia-Pacific Trade Agreement, Preferential Tariff Arrangement-Group of Eight Developing Countries and South Asian Free Trade Area. In addition, the negotiations are ongoing for the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) Free Trade Area and Pakistan-Bangladesh Free Trade Agreement. In addition, the U.S. - Bangladesh Trade and Investment Cooperation Forum Agreement (TICFA) signed in 2013 provides a mechanism for both countries to meet regularly and identify and overcome obstacles to increasing bilateral trade and investment. Bangladesh has also signed investment treaties with several countries.

Bangladesh has taken steps to strengthen bilateral economic relations with India by reducing trade barriers and improving connectivity. Bangladesh gained duty-free access to India via regional trade agreements. The key one is SAARC's Preferential Trading Arrangement (SAPTA), which was operationalized in December 1995 and gives limited preferential market access to exports of member countries.

7. Capital Market and Investment Promotion

Bangladesh has made gradual progress in developing capital markets but it has been dependent on domestic investors with limited participation from international portfolio investors. Bangladesh is home to the Dhaka Stock Exchange (DSE) and the Chittagong Stock Exchange (CSE), which are regulated by the Bangladesh Securities and Exchange Commission (BSEC). Apart from this, a separate tribunal has been established to expeditiously resolve capital market related criminal cases. All these reforms

target a disciplined market with better infrastructure so that entrepreneurs can raise capital and attract foreign investors.

Some of the facilities being provided are: Concessionary duty at the rate of five per cent ad valorem on imported capital machinery and spares for initial installation and for BMR/BMRE of existing industries. Value Added Tax (VAT) is not payable for imported capital machinery and spares. Avoidance of double taxation with different countries on the basis of bilateral agreements. Tax exemption and duty-free import of capital equipment and spares for 100 per cent export-oriented industries. Facilities for easy repatriation of invested capital, profit, dividend, royalty, technical fee, etc. by foreign investors.

Exemption from corporate income tax for a period of 15 years. Plant and equipment (full value) and spare parts (10% of original plant cost) without payment of customs duties, VAT and any other surcharges. Accelerated depreciation in lieu of tax holiday is allowed at the rate of 80 per cent of depreciation but is 100 per cent for areas specified by NBR.

Import duty, at the rate of five per cent ad valorem, is payable on capital machinery and spares imported for initial installation or BMR/BMRE of the existing industries. The value of spare parts should not, however, exceed 10 per cent of the total C & F value of the machinery. For 100 per cent export oriented industries, no import duty is charged in case of capital machinery and spares. However, import duty @ five per cent, which is secured in the form of bank guarantee or an indemnity bond, will be returned after installation of the machinery. VAT is not payable for imported capital machinery and spares. Plant and equipment (full value) and spare parts (10% of original plant cost) without payment of customs duties, VAT and any other surcharges. Tax holiday of 5-10 years depending on location of industries and 15 years tax holiday for private power-generation companies.

4.3.3 Bhutan

I. Policy, Regulatory and Legal Framework

The key legislations, which impact the hydropower sector in Bhutan include:

- **Bhutan Sustainable Hydropower Development Policy** - The Bhutan Sustainable Hydropower Development Policy 2008 (SHDP) is the anchor document, which defines the government's intentions with regard to future hydropower development. Amongst the key policy issues it confirms that the Royal Government of Bhutan (RGoB) is committed to an accelerated programme for the development of its hydro resources, with the objective of having at least 10,000 MW built by 2020. The key features include:
 - Provides for minimum Bhutanese holding of 26 per cent in all projects up to 150 MW.
 - Projects more than 150 MW and upto 1000 MW are open for JVs with Bhutanese companies or 100 per cent foreign investment.
 - Projects are to be developed under a BOOT model, by a project specific Special-Purpose Vehicle (SPV) registered under the Companies Act of Bhutan. Concessions will be granted for an operating period of 30 years, with an option to extend a further 15 years on terms to be mutually agreed upon.
 - The policy requires that projects be allocated to developers on the basis of competitive bidding, although there is provision for direct negotiation in certain circumstances.
 - Foreign direct investment is limited to 74 per cent of the equity for medium sized projects, and 100 per cent of the equity for large and mega projects. Indian companies will be committed to investing rupees, but otherwise all investment shall be in freely convertible currency, which implies that there will be a currency risk when it comes to repayment of the debt and equity.

■ Electricity Act, 2001

- The Electricity Act enables the restructuring of the power supply industry and the possible participation of the private sector, by providing mechanisms for licensing and regulating the operations of power companies. Section 2.1 (iv) provides that the purpose of this Act is to provide for private sector participation in the electricity supply industry.
- There is some ambiguity in defining private participation as the definitions in Electricity Act are ambiguous and do not clearly define private participation in electricity generation. There are conflicting definitions of “power supply” and the objective of the Act regarding private participation. The Electricity Act defines Bhutan Electricity Authority (BEA)’s role and as per Section 49.2, BEA is to manage the entire bid process.
- Section 49 of the Act, envisages that the decision of private participation lies with RGoB and BEA cannot proceed with private participation on its own.
- Land Act 2007 – The Land Act of Bhutan is clear on the aspects of acquisition, compensation, registration etc. Landowners are required to strictly comply with the terms of the Act. There does not appear to be any restriction or hindrance for private investors in land deals as long as they satisfy the provisions of the Act.
- The Water Act of Bhutan 2011 – The main purpose of this Act is to protect, conserve, and manage water resources in an economically efficient, socially equitable and environmentally sustainable manner. The Act envisages the formulation of a National Integrated Water Resources Management Plan for coordinated development, management, conservation and efficient use of water resources. The Act provides for the National Environment Commission who shall be responsible for exercising the powers conferred to it under the Act. The Act does not limit or restrict participation of a private player in any manner. In fact, Clause 19 of the Act expressly permits Competent Authorities to enter into contracts with private parties for water related infrastructure.
- Economic Development Policy (EDP), 2010: The EDP provides for a number of general incentives to all sectors and industries. These are intended to promote private investments and act as an incentive mechanism. However these incentives do not have a place in the SHDP. The list of general incentives relevant to hydropower investment are:
 - Custom duty and sales tax exemption shall be provided for import of plant and machinery directly related to the manufacture of its products or utilised in providing a licensed service, except for the category of goods for civil, electrical or plumbing works, or goods and materials used for installation or housing plant and machinery. All spares, accessories, consumables, tools, kits, office equipment, furniture and vehicles shall not form part of plant and machinery. Exemption for manufacturing and service industries shall be extended for 10 years till 31 December 2019.
 - Reinvestment allowance shall be given to all companies, registered under the Companies Act as tax-deductible expenses up to a maximum of 25 per cent of the total reinvestment. Reinvestment allowance shall be given only once for every new investment undertaken till 31 December 2015.

A summary of the key policies impacting the investment climate in Bhutan is provided below (table-10)

Table 10 Brief Summary of the Key Policies Impacting the Investment Climate in Bhutan

Entity	Policies	Key Features
Ministry of Economic Affairs	- Foreign Trade Policy - Rules and regulations governing trade with other countries - FDI regulations	- No restriction on electricity export under Umbrella Agreement - Power sector FDI based on Sustainable Hydropower Policy
Ministry of Finance	- Fiscal/Public finance policies - Budgetary expenditure policy across key areas of development - Accountability of public resources	Minimum budgetary support for power sector
Royal Monetary Authority	- Monetary policy and money management - Currency management - Exchange rate policy and convertibility status	Rupee and Nu are pegged
Bank of Bhutan and Bhutan National Bank	- Banking policies and framework - Prudential norms - Banking services and reach	Sectoral caps and groups lending caps
Royal Securities Exchange of Bhutan	- Securities market regulations and exchange policies - Existence of governance norms and adequate checks - Trading history and liquidity	No restrictions subject to fulfilment of specific criteria

2. Land Acquisition, Rehabilitation and Resettlement

The government is responsible for acquiring private land required for the hydro projects but the cost is chargeable to the SPV. The developer shall be responsible for Environmental and Social Impact Assessment (ESIA) mitigation, including rehabilitation and resettlement to an amount not exceeding one per cent of the project cost. Any other infrastructure necessary for development would be part of the project and hence the responsibility of the developer. The Land Act 2007 provides mode of acquisition of registered land and the compensation against such acquisition. The Act under Section 151 provides for establishing a Property Assessment and Valuation Agency, which would be responsible for the valuation and fixing of the value of land.

3. Dispute Settlement and Arbitration

Sustainable Hydropower Policy is not specific on dispute resolution procedures, but describes them as being mediation, conciliation or arbitration or through a mutually agreed framework between the parties, who also have the right to refer any disputes for arbitration before the Royal Courts of Justice of Bhutan. Western foreign investors may be uncomfortable with this and could require access to international arbitration.

For the FDI under the FDI Act, all disputes arising between the parties (JV participants or a FDI Company and the government) shall be resolved amicably or by reference to mediation, conciliation

and arbitration, as may be agreed between the parties; or by adjudication before the Royal Court of Justice as per the procedure; or in manner as may be provided by special procedure under the laws of the land.

4. Foreign Direct Investment

The Foreign Direct Investment Policy 2010 lays out the principles under which foreign investment can be made in certain sectors within Bhutan. It is however only a guideline, and the government has the right to create exceptions to the rules laid down in the policy document. The following are the most relevant Sections that would affect inward hydro investment in the hydropower sector.

- **Eligibility** - Hydropower is a defined area of priority. The granting of an FDI license is based on certain criteria, which would be met through investment in any new hydro project. FDI businesses are governed by the taxation laws of Bhutan, including the Sales Tax, the Customs and Excise Act, 2000 and the Income Tax Act 2001. The initial debt of the proposed FDI business, except in the case of financial services cannot exceed 70 per cent of the project cost. The FDI Company can retain 100 per cent of the foreign equity invested in the company for a minimum of three years from the date of start of commercial operations of the FDI business.
- **FDI Rules 2012 (Amended 2014)** – It allows for foreign direct investments in all the sectors except the negative list including existing entities for expansion of core activities. The FDI can be made in convertible currency except for Indian investors who can invest in Indian rupees subject to certain conditions. All foreign investors intending to establish FDI businesses shall be incorporated under the Companies Act of the Kingdom of Bhutan 2000.
- **Repatriation of dividends and capital** - Foreign investors have the right to repatriate dividends in the currency of earnings. Where the revenue is in local currency but the investment has been made in convertible currency, the investor may purchase convertible currency up to USD five million a year for the first 10 years of operation. This limitation on repatriation of dividends is not long enough for a hydro concession lasting 30 years, and the ceiling may not be high enough for larger investors. Repatriation of capital and any capital gains are permitted in the currency in which the original investment was made. Therefore a developer selling his equity in a local SPV company owning the project should be able to repatriate his capital and any gains, subject to there being sufficient foreign exchange available.
- **Access to foreign exchange** - Any foreign exchange requirements for operational expenses shall be met through the foreign exchange earnings of the FDI business, which shall open a foreign account with a local bank. This would present a problem for an IPP having revenue in local currency but requiring to hire expatriate staff or purchase equipment or services in foreign currency.

5. PPP Framework

Bhutan's experience in PPP has so far been limited but the country recognises its infrastructure needs and is on the way to developing an adequate PPP framework. In 2010, Bhutan's government issued the "Framework for private participation in infrastructure," as part of their EDP. The document provided a regulatory framework for private participation in infrastructure that allows PPPs in several sectors including transport, multi-dwelling residential buildings and non-residential buildings, municipal buildings, SEZs, and industrial parks. Based on the framework and "Bhutan Vision 2020", the government developed a draft policy drawing from international experience. The anticipated institutional framework includes a Public Private Partnership Agency (P3A) in the Ministry of Economic Affairs, Project Committees in each implementing agency, and a multi-sectoral PPP Steering Committee. To further support capacity within the government and provide a catalyst to undertaking government institutions, the government is developing a ring-fenced project development fund.

6. International Investment Agreements

Bhutan has close and strong bilateral ties with India and trade relations are guided by the India-Bhutan Trade Agreement. In addition, Bhutan is also part of the South Asian Free Trade Area and is negotiating for the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) Free Trade Area.

7. Capital Markets and Investment Promotion

The Royal Stock Exchange of Bhutan is nascent with a market capitalisation of Bhutanese Ngultrum 20 billion (USD 375 million), as on Feb 2015. There are around 20 companies listed on the exchange. There are significant limitations of domestic capital availability within Bhutan's capital market to finance large sized hydropower investments and the available domestic sources can meet only a part of the requirements.

The government has provided several fiscal benefits for attracting investments in the power sector in Bhutan including:

- **Reinvestment allowance:** Provided to all companies, registered under the Companies Act as tax-deductible expenses up to a maximum of 25 per cent of the total reinvestment. Reinvestment allowance shall be given only once for every new investment undertaken till 31 December 2015 - Need to prove that no loan has been taken for the proposed investment (promotes investment from internal accruals).
- **R&D:** Expenditure incurred including those by patrons for R&D shall be allowed as tax deductible expenditure in whole - implications for investments like Runner Reclamation Centre, Centre of Excellence, Glacier Lake Burst Study.
- **Environmentally friendly technological up gradation:** Income tax rebate of 15 per cent of the up-gradation expenses. Available if the up gradation is beyond the minimum standards as required by law – implications on investment in renewable energy with new technology etc.
- **Domestic Preference:** The Royal Government shall accord domestic preference of five per cent for all its procurement – promotes sourcing from within Bhutan.

4.3.4 India

There is no requirement of licenses to set up new power plants, though FDI is not allowed in the nuclear segment. An income tax holiday for 10 years in the first 15 years of operation and waiver of capital goods' import duties on mega power projects, above 1,000 MW generation capacity, is provided as incentive for investing in the sector.

Power procurement is permitted through a transparent bidding process. There is no customs duty on the import of capital goods for mega power projects. Some of the other measures initiated by the government to provide a boost to the power sector include the following:

I. Policy, Regulatory and Legal Framework

There are various frameworks (Table-II) for the sub-sectors of power as generation, renewables, transmission etc.

Table II Policy, Regulatory and Legal Framework in Power Generation, Transmission, Renewables

Sub-sector	Regulatory framework	Policy highlights
Generation	Mega Power Policy, 1995	- The GoI introduced the Mega Power Policy (“MPP”) in 1995 to increase private investment in generation projects exceeding 1,000-MW that would supply electricity to more than one state. - Under the policy, mega power projects were to be awarded on the basis of competitive bidding, and the CEA, Power Grid, and NTPC were to facilitate projects by providing support to these projects in identified areas.
Generation, transmission and power trading	Electricity Act, 2003	- De-licensing of thermal generation - Open access to transmission and distribution - Introduction of power trading as a licensed activity
Power procurement	Electricity Act, 2003	- To foster power procurement through competitive bidding under <i>Case 1</i> and <i>Case 2</i>. - Sections 61 and 62 of the Act provide for tariff regulation and determination of tariff of electricity by the “Appropriate Commission”. Under Section 63 of the Act, the Ministry of Power issues guidelines for the determination of tariff by a bidding process for procurement of power by distribution licensees.
Renewables- Wind	National Offshore Wind Energy Policy	- Generation based incentive - Accelerated depreciation - National Clean Energy Fund
Tariff determination	CERC (Terms and Conditions of Tariff) Regulations, 2014	Segregation of capacity and energy charges and clear mandate to determine the same.
Tariff, Cost, tax, RPO etc.	National Tariff Policy 2016	- As per Section 3(3) of Electricity Act 2003, - A revised Tariff Policy which contained several provisions to facilitate continued development in the generation sector - Introduction of new renewable purchase obligations.
REC	CERC (T&C for recognition and issuance of REC for RE Generation) Regulations, 2010	- REC price calculation framework - Segregation of solar and non-solar RECs

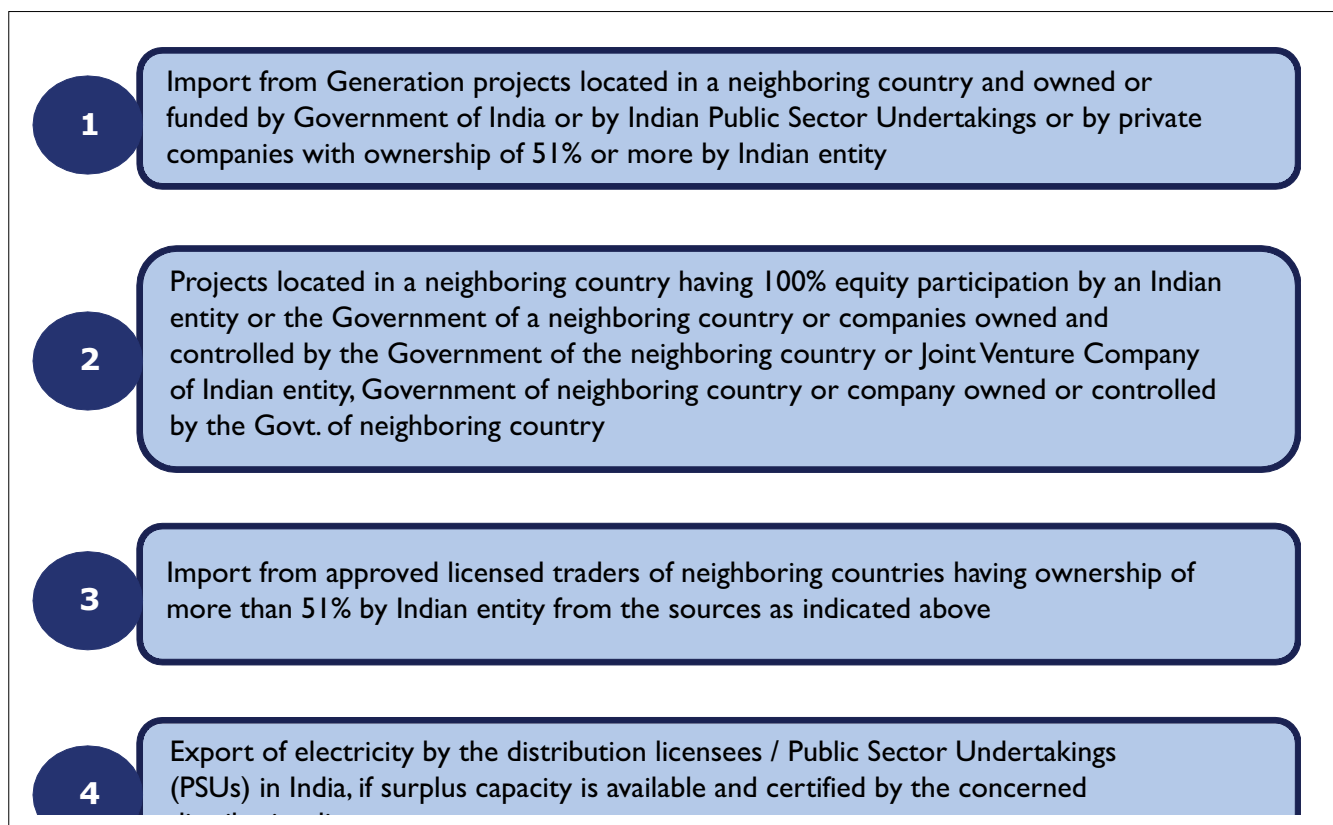
The Electricity Act of 2003 replaced the legal framework for the sector that had hitherto been governed by the Indian Electricity Act of 1910, the Electric Supply Act of 1948, and the Electricity Laws (Amendment) Act of 1998. Promoting competition in the electricity industry in India has been one of the key objectives of the Electricity Act of 2003.

The Electricity Rules (Amendment) Act of 1998 for the first time authorised transmission to be a separate activity, making way for a transmission license, and brought in the legal framework enabling private sector participation (PSP).

To pave the way for private sector investment, the central government issued guidelines in January 2000 for two routes of PSP in transmission. The JV route allows the central transmission utility or the state transmission utility shall own a minimum of 26 percent of the equity in the JV, with the private participant holding the balance. In an independent power transmission company route transmission projects are bid for under a competitive process with the private developer holding 100 percent of the equity in the project.

The GoI's Cross Border Trade in Electricity (CBTE) Guidelines published in December 2016 posed certain conditions on the equity shareholding for CBET assets which propose to transact power with Indian entities as shown in the Figure-9 below.

Figure 9 Eligibility for Investments in CBET - Government of India Guidelines



2. Land Acquisition, Rehabilitation and Resettlement

Land acquisition remains a big issue in setting up thermal power plants and laying transmission lines. Land acquisition along with environment clearance, rehabilitation and resettlement can adversely impact hydro projects.

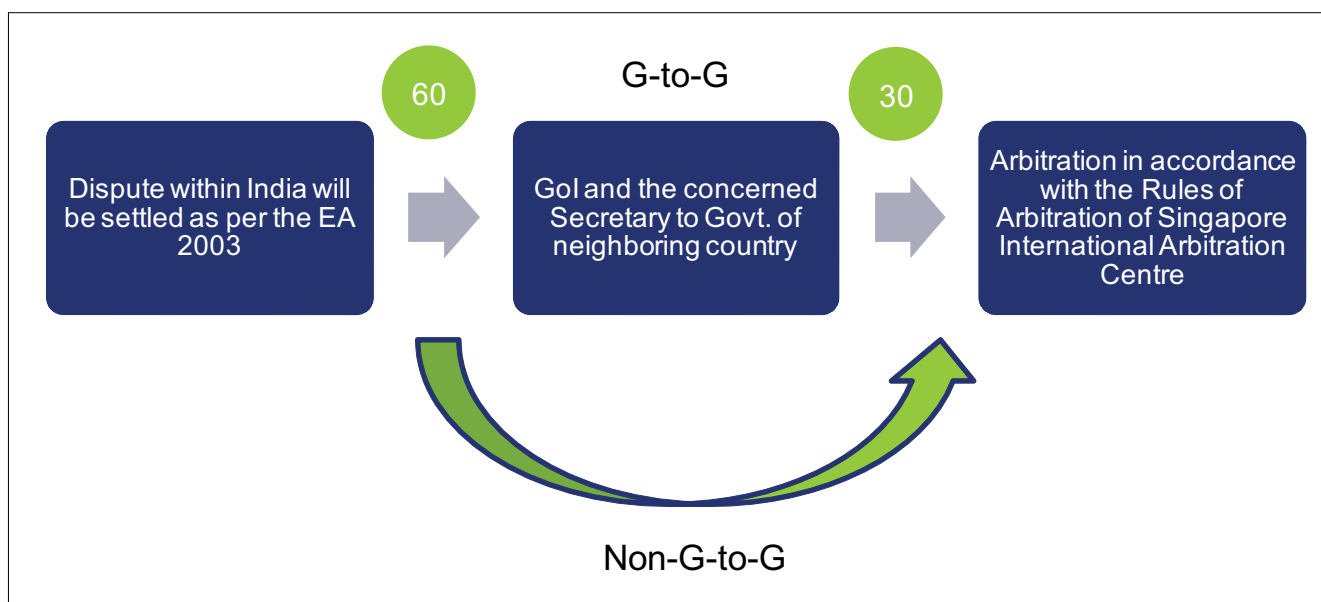
The private sector's participation is hindered because of Right of Way (RoW) issues. The developer's inability to acquire land and get timely clearances from all stakeholders has resulted in several multiple transmission projects getting delayed. Sometimes it also results in transmission lines having to take sub-optimum routes or routes that had not been planned at the project's inception. To address the developer's concerns regarding land acquisition, the GoI introduced the Land Reform Bill. There is uncertainty about this Bill being passed and its potential impact.

3. Dispute Settlement and Arbitration

The power purchase agreements, transmission service agreements and other contractual arrangements in India's power sector have a well-defined dispute settlement mechanism. The relevant regulatory authorities (CERC or SERC) are part of the dispute resolution framework. In case any party wants to challenge the regulator's decision, it can be taken up by Appellate Tribunal of Electricity (APTEL). APTEL's decision can be challenged in the High Court and finally in the Supreme Court. During the contract signing stage, the parties can also decide to build in the facility international arbitration in an international court of law.

The recent cross border trade of electricity (CBTE) guidelines published by GoI in Dec 2016 specify the dispute resolution mechanism for both government to government arrangements as well private agreements for the cross border arrangements between India and any neighbouring country. The framework allows for the intervention of regulators for disputes within India, designated government authorities for government to government deliberations and the Singapore International Arbitration Centre rules for non government to government arrangements (Figure-10).

Figure 10 Dispute Resolution as per GOI's CBTE Guidelines



4. Foreign Direct Investment

In India, FDI up to 100 per cent is permitted under the automatic route for the following segments in the power sector:

- Generation and transmission of electric energy produced in hydro-electric, coal/lignite-based thermal, oil- and gas-based thermal power plants
- Non-conventional energy generation
- Distribution of electric energy to households, industrial, commercial and other users
- Power trading: Under the Power Sector investment policy, 49 per cent FDI is permissible for Power Exchanges. FDI investment is subject to government approval.

The other conditions which needs to be satisfied include:

- Such foreign investment would be subject to an FDI limit of 26 per cent and an FII limit of 23 per cent of the paid-up capital;
- FII investments would be permitted under the automatic route and FDI would be permitted under the government approval route;
- FII purchases shall be restricted to the secondary market only;
- No non-resident investor/entity, including persons acting in concert, will hold more than five per cent of the equity in these companies;
- Foreign investment would be in compliance with SEBI Regulations; other applicable laws/regulations; security and other conditionality.

One hundred per cent FDI is allowed in India in the power sector with the exception of 49 per cent in petroleum refining and 49 per cent in power exchanges. The following Table illustrates the terms and conditions for these investments.

Table 12 Terms and Conditions for Investments in Indian Power Sector

Sector	Policy
Thermal	100% FDI is allowed under the automatic route in the power sector (except atomic energy), subject to all applicable regulations and laws.
Oil & Gas	Exploration activities of oil and natural gas fields, infrastructure related to marketing of petroleum products and natural gas, marketing of natural gas and petroleum products, petroleum products' pipelines, natural gas pipelines, LNG regasification infrastructure, market study, formulation and petroleum refining in the private sector, subject to the existing sectoral policy and regulatory framework in the oil marketing sector and the government's policy or private participation in exploration of oil and the discovered fields of natural oil companies - 100% FDI, automatic route.
	Petroleum refining by PSUs, without disinvestment or dilution of domestic equity in existing PSUs - 49% automatic route.
Renewable Energy	FDI up to 100% is permitted under the automatic route for renewable energy generation and distribution projects subject to provisions of The Electricity Act, 2003.
Electrical Machinery	100% FDI is allowed under the automatic route in the electrical machinery sector, subject to all applicable regulations and laws.
Power Exchange	FDI in power exchanges up to 49% (26% FDI+23% FII/FPI) is under the automatic route.

Foreign Direct Investment screening is undertaken by the Foreign Investment Promotion Board (FIPB), a GoI entity that purportedly provides single window clearance for FDI proposals. The Minister of Finance approves FIPB decisions on investments of up to USD 200 million, while larger investments require approval from the Cabinet Committee on Economic Affairs (CCEA).

5. PPP Framework

India has extensive experience in PPPs in various infrastructure sectors including power. With several hundreds of PPP projects in various stages of implementation, India is one of the leading countries in terms of their PPP environment.

The central coordination of PPPs is done by the PPP Cell within the Department of Economic Affairs (DEA) under the Ministry of Finance. In 2011, in an effort to strengthen the national-level regulatory framework and streamline PPP procedures, the DEA produced guidelines for the formulation, appraisal, and approval of PPP projects. The guidelines also apply to the provision of financial support for PPPs based on financial and economic viability assessments. Adopting international best practices, the appraisal procedures for PPP projects were streamlined with the goal of standardising appraisal mechanisms and guidelines, expediting project appraisals, and eliminating delays. To this effect, the Public Private Partnership Appraisal Committee (PPPAC) was created. It is responsible for PPP project appraisal at the central level.

The government has issued a series of guidance papers and a PPP Toolkit to support project preparation and decision-making processes. These papers provide sector-specific instructions and can be used through all stages of project identification, feasibility study, procurement, and operation. The Ministry of Finance has published standardised bidding documents for PPP projects, including request for qualification (RFQ) for the pre-qualification of bidders, request for proposal (RFP) for the invitation of financial bids, and a model RFP for engaging financial consultants and technical advisers for PPP projects. Various central ministries including the Ministry of Road Transport and Highways and the Ministry of Shipping have developed standardised contractual documents, such as sector-specific model concession agreements. In the power sector, the Ministry of Power has also defined the framework for competitive bidding to be followed for generation and transmission projects. The Ministry of New and Renewable Energy (MNRE) has also specified the draft guidelines for the competitive selection of private developers.

The total investment committed to PPPs since 1990 is USD 226 billion (World Bank estimates).

6. International Investment Agreements

India is in the process of negotiating 14 FTAs and it has already signed 14 FTAs in Asia. Among the FTAs signed, 10 are bilateral in nature and the remaining four are as follows:

- South Asian Free Trade Area
- Asia-Pacific Trade Agreement
- ASEAN-India Comprehensive Economic Cooperation Agreement
- India-Gulf Cooperation Council Free Trade Area.

7. Capital Markets and Investment Promotion

India is the largest capital market in the region with more than 5,800 listed companies and a total market value of more than USD 1.5 trillion by the end of 2015. There are a total of 23 regional stock exchanges, but almost all the trading is conducted on the two national stock exchanges that operate nationwide: the Bombay Stock Exchange (BSE) and the National Stock Exchange (NSE). India is the only country in the region to have a significant derivatives market. The NSE has almost all of the financial derivative

market and trades a wide range of stock, stock index derivatives, and interest rate derivatives. Trading volumes are very high.

India has a single securities regulator, SEBI, which regulates the securities markets, including mutual funds. There are separate regulators for insurance and banking sector.

4.3.5 Maldives

Maldives began opening up to foreign investment in the late 1980s. Foreign investments in Maldives have primarily been in resort management, but there has also been some investment in telecommunications, accounting, banking, insurance, air transport, courier services, and some manufacturing.

1. Policy, Regulatory and Legal Framework

The government has announced the following policies, which focus on the energy sector in the Maldives.

- National Energy Policy (2009-2013)
- National Energy Action Plan (2009-2013)
- National Environment Action Plan (2009-2013)
- National Solid Waste Management Policy
- Framework for Utility Investment Approvals including model PPA

Maldives has no laws pertaining to arbitration. The judgments given by foreign courts are generally accepted and enforced by local courts. Maldives is not a member of the International Centre for the Settlement of Investment Disputes (ICSID); it also does not have a competition law as yet, and hence there is currently no legal mechanism to review transactions for competition-related complaints. There are no laws or regulations in place that limit or prohibit foreign investment, participation, or control.

The Ministry of Economic Development offers “one-stop shop” services to investors and incentives include import duty concessions, 100 per cent foreign ownership, and no restrictions on repatriation of earnings or profits. Foreign investments were earlier required to pay annual royalty fees to the government at three per cent of gross income or 15 per cent of the profit, whichever is greater, for majority foreign-owned companies. However, with the Business Profit Tax becoming effective from July 18, 2011, foreign investors are now exempt from royalty fees. Maldives currently does not have any personal income taxes. In addition, a goods and services tax on the tourism sector, and a general services tax on all goods and services supplied in the Maldives came into effect in 2011. International arbitration is available for dispute settlement.

2. Land Acquisition, Rehabilitation and Resettlement

There is little private ownership of land, and foreign investors cannot own land. An amendment to the Tourism Act passed in 2010 allows investors to lease an island for 50 years in general, and 99 years if the company: 1) is registered in Maldives; 2) floats at least 55 per cent of the company's shares on the Maldives stock market; and 3) has development of tourist resorts listed as an objective in the company's registration.

Leases can be renewed at the end of their term, but the formula for assessing compensation value of a resort at the end of a lease has not yet been developed. All other land may be leased for maximum periods ranging from 10 to 15 years, depending on the purpose for which the land was initially allocated. Currently there are no property and real estate laws or a mechanism to allow foreign persons to hold title to land.

3. Dispute Settlement and Arbitration

The sources of law in Maldives are its Constitution, Islamic Sharia Law, regulations, Presidential decrees, international law, and English common law, with the latter being more influential in commercial matters. The Judicial Services Commission (JSC) is responsible for nominating, dismissing, and examining the conduct of all judges. A Supreme Court was established for the first time in 2008 under the new Maldives Constitution. The Supreme Court is the highest judicial authority in Maldives. In addition to the Supreme Court, there are six courts in Male'; a High Court; Civil Court; Criminal Court; Family Court; Juvenile Court; and a Drug Court. Though there are adequate legal procedures, the judicial process is slow. Court rulings are now made available to the public through the relevant court's website, increasing the transparency of the judicial system.

The law on foreign investments guarantees the security of investments and there are no laws that limit or prohibit foreign investment, participation, or control. A new Privatisation Act was introduced in January 2013, which will govern all future privatisation and corporatisation efforts by the government.

There have been instances of political uncertainty in Maldives, which set negative examples for new investors. A few contracts for projects, which had been awarded by the previous government have been repudiated by the new government. GMR Male International Airport is such a case where the Government of Maldives and Maldives Airport Company entered into contract with GMR for the modernisation and operation of Ibrahim Nasir International Airport in 2010. Later this agreement was unlawfully repudiated by the Government of Maldives in 2012 and an international arbitration was initiated. In 2014, the International Arbitral Tribunal (Singapore seat) ruled in favour of GMR stating the agreement was valid and binding; and Government of Maldives with the Maldives Airport Company are jointly liable in damages to GMR.

4. Foreign Direct Investment

Maldives began opening up to foreign investment in the late 1980s. The foreign investments primarily were in resort management, but also included telecommunications, accounting, banking, insurance, air transport, courier services, and some manufacturing. The Ministry of Economic Development is tasked with promoting and regulating foreign investments in all sectors, except for the tourism sector. The Ministry of Tourism is in charge of setting policy and developing the tourism sector, while the Maldives Tourism Promotion Board (www.visitmaldives.com) promotes the Maldives as a destination. The Ministry of Economic Development reviews all proposed investments prior to granting licenses. Several initiatives for FDI in the Maldives have been delayed due to the prevailing political uncertainty in the country.

Foreign investment in Maldives is governed by Law No. 25/79, governing agreements between the government and investors. A separate law (No. 4/79) governs business and trading activities by foreign nationals, while the Business Profit Tax Act (No. 5/11) governs taxation. A new Partnership Act was also introduced in 2011. Currently foreign investments are given approval for an initial period of one year, with the option of renewal.

The law on foreign investments guarantees the security of investments. The government in the recent past cancelled or re-opened provisions of at least two foreign development agreements committed to by previous governments. The Maldivian government took over operation of the Male' International Airport from GMR, an Indian company, after the Maldivian government repudiated the 2012 contract.

5. PPP Framework

The country has had little experience of PPPs, the Malé airport being a prominent exception. Besides infrastructure, the government also encouraged private participation in the healthcare and education

sectors. Since 2012, significant progress in infrastructure development and PPP has been absent, partly due to the political instability following the undemocratic change in government. The total investment committed to PPPs since 1990 is USD 524 million (World Bank estimates).

6. International Investment Agreements

Maldives currently does not have personal income taxes, although bank profits and business profits are taxed. In addition, a goods and services tax on the tourism sector, and a general goods and services tax came into effect in 2011. Maldives is part of the South Asia Free Trade Agreement. Maldives has signed the Trade Preferential System of the Organization of the Islamic Conference, which is still to become effective. In 2009, the United States signed a Trade and Investment Framework Agreement (TIFA) with Maldives for the two countries to examine ways to enhance bilateral trade and investment.

Maldives became the 165th member of the World Bank Group's MIGA in 2005.

7. Capital Markets and Investment Promotion

The Maldives financial sector is narrow and dominated by the banking sector. The banking sector consists of one publicly owned commercial bank (Bank of Maldives) and a few foreign-owned commercial banks. The Maldives Islamic Bank, established through a partnership between the Government of Maldives and the Islamic Corporation for the development of the private sector (ICD), commenced operations in March 2011, offering Islamic Sharia-compliant products. Non-bank financial institutions in the country consist of two insurance companies, a pension fund, and a finance leasing company. All financial institutions currently operate under the supervision of the Maldives Monetary Authority, the central bank. The Maldives Monetary Authority Act was amended in 2007 to ensure the Authority's independence. Banking supervision has recently been upgraded, moving toward international best practices. A comprehensive Banking Act was enacted in Dec 2010 covering financial, prudential, supervisory matters, conservatorship, liquidation, and receivership. The commercial banks provide short and long term credit to the private sector. No specialised financial institution exists to meet the investment needs of the infrastructure sector.

4.3.6 Nepal

1. Policy, Regulatory and Legal Framework

There are two government entities responsible for foreign investment. The first is the Industrial Promotion Board (IPB), chaired by the Minister of Industry, which is charged with coordinating economic policies, establishing guidelines for investment, approving foreign investment proposals, and determining applicable investment incentives.

In August 2011, the government created a second entity, the Investment Board of Nepal (IBN), to serve as a "one window" facility for domestic and foreign investors pursuing projects worth more than USD 100 million or large scale projects in priority sectors such as civil aviation, tourism, or hydroelectricity. The Board, chaired by the Prime Minister, has the authority to formulate investment policies, prioritise and approve projects, facilitate the signing of agreements among different ministries, provide financial and nonfinancial facilities, procure land, monitor project progress, order government agencies to issue necessary project approvals, and bypass existing regulations in the name of investment promotion. The creation of the Board aimed to cut through bureaucratic red tape and expedite investments coming into Nepal.

The IBN's primary focus has been on hydropower development, and it is responsible for projects larger than 500 MW. In 2014, the IBN signed power-development agreements with Indian investors for two 900 MW developments, the Upper Tamakoshi and Arun III projects. Negotiations are ongoing with Indian, Norwegian, and Chinese investors on three other large hydroelectric projects.

Prior to the establishment of the Investment Board, the Department of Industry, under the Ministry of Industry, was designated as the “one window servicing agency” for all foreign direct investment. The Department of Industry still registers and classifies foreign investments and manages the income tax and duty drawbacks granted to some foreign investments. The Department of Industry remains the focal point for foreign investments of less than USD 100 million or investments outside of the priority sectors.

The FDI in the power sector is guided by various separate sectoral policies (Foreign Investment and One Window Policy 1992, Hydropower Development Policy 2001), parliamentary statutes, rules, guidelines, directives etc. The following is the list of Acts which have an impact on foreign investments in hydropower sector in Nepal.

- Foreign Investments and Technology Transfer Act, 1992 (FITTA)
- Industrial Enterprises Act, 1992
- Electricity Act, 1992
- Private Investments in Infrastructures Act, 2006
- Mines and Mineral Resources Act, 1985
- Bank and Financial Institutions Act, 2006
- Companies Act, 2006
- Investment Board Act, 2011
- Foreign Exchange (Regulation) Act, 1963
- Contract Act, 2000
- Arbitration Act, 1999
- Income Tax Act, 2002
- Labour Act, 1991
- Privatisation Act, 1992

These laws provide for fair and equitable treatment for the FDI without discrimination; allows transfer of funds; guarantee against expropriation (Industrial Enterprises Act); guarantee for repatriation of FDI (FITTA). Nepal is a party to MIGA that protects the FDI from political risks.

The Nepali legal system is a combination of Common law, Continental law and indigenous legal norms. There is an absence of codification of laws, while the business/corporate laws are influenced by the Anglo-Indian laws. The Nepali judiciary is independent and courts are autonomous bodies having a three-tier structure (First Instance, Appellate and Supreme Court).

2. Land Acquisition, Resettlement and Rehabilitation

An investor is free to acquire land on its own and can also request the Government of Nepal in case it is not able to do so. Land has to be registered with the company and title of the land shall be vested upon it. Government/public land required for the industry shall be given on long-term lease basis. The Government of Nepal introduced the Land Acquisition, Resettlement and Rehabilitation Policy in March 2015, which would pave the way for developers of various physical infrastructure projects to acquire land without affecting the livelihood of people who have to be relocated from the area where such projects will be built. The policy, requires creation of a scientific standard for land valuation and

extension of compensation equivalent to minimum market value of land, it is expected to facilitate developers implement projects, like hydro, roads and transmission lines, on time. This will reduce the chances of significant cost overrun, which inflates project costs. Also, a provision in the policy that allows the government to take action against those who try to disrupt the land acquisition process or create hurdles for project developers who have acquired land by following the due process is expected to help project developers complete the projects on time.

3. Dispute Resolution and Arbitration

Nepal's legal system finds its influence in British common law. The system of law and justice has its roots in ancient Hindu religion and culture. Nepal's court system is based on common law and does not have a commercial code. Contract law is codified. A commercial court exists at the appellate level.

In disputes involving a foreign investor, the concerned parties are encouraged to settle the matter through mediation in the presence of the Department of Industry, (Sec.7, FITTA) or by arbitration under UNCITRAL Arbitration Rules, (Sec.7 (2) FITTA). If the dispute cannot be resolved, cases may be settled either in a Nepali court or in another legal jurisdiction, depending on the amount of the initial investment and the procedures specified in the contract. Commercial disputes under the jurisdiction of Nepali courts and laws typically drag on for years.

Nepal is a signatory to and adheres to the New York Convention of 1958 on the Recognition and Enforcement of Foreign Arbitral Awards, and it has updated its legislation on dispute settlement to bring its laws into line with the requirements of that convention. The Arbitration Act of 1999 is based on Model UNCITRAL Commercial Arbitration Act (1985) and allows the enforcement of foreign arbitral awards and limits the conditions under which those awards can be challenged. Nepal is also a party to the ICSID Convention (1969).

Both the Company Act and the Insolvency Act of 2006 cover liquidations. If the company is insolvent and unable to pay liabilities, or liabilities are more than the assets, then its liquidation is covered by the Insolvency Act. Under the Company Act, the claimant priorities are 1) government revenue 2) creditors and 3) shareholders. Under the Insolvency Act, the government is equal to all other unsecured creditors. Monetary judgments are made in local currency.

4. Foreign Direct Investment

Foreign investment is open to almost in all sectors of the economy (both in manufacturing and service sectors) except for the negative list (certain exceptions) included in FITTA where FDI is restricted. In any non-restricted sectors like power, foreign ownership can go up to 100 percent. There is no minimum threshold for foreign investment and the foreign investor can dispose off the investments at any time. The foreign investment in any industry can be in form of

- Investment in equity
- Reinvestment of earnings deprived from existing investment
- Investment made in the form of loan or loan facilities
- Transfer of technology
- Lease finance
- Opening a branch to carry out business.

An investor is entitled to open and operate bank accounts in Nepal in foreign currency, to transfer funds in foreign currency through banking channels, and to repatriate the following amounts:

- Amount received from sale of shares of foreign investment,
- Amount received as profit or dividends in lieu of FDI,
- Amount received as payment of principal and interest on any foreign loan,
- Amount received as royalty, fee etc. under the Technology Transfer Agreement.

The Government of Nepal has accorded certain incentives and facilities to foreign investors such as

- No income tax on export earnings and interest earned on foreign loans
- Tax deduction on the products, machinery, equipment, tools and raw materials used by an export industry
- An extra 10 per cent discount on income tax to any business providing direct work to 600 or more locals and no royalty on captive power generation for the industry's own use and no double sales tax on raw materials and products.

Likewise, the reimbursement of, sales tax and excise duty levied on products sold to export promotion houses, customs duty, sales tax, excise duty and premium levied on raw materials, etc. used for production by an export industry, customs duty and sales tax on raw materials meant for industrial use, on inputs used for production of intermediate goods to be used for the production of exportable goods including refund on the sales tax and excise duty paid on intermediate goods on the basis of the quantity of exports within sixty days from the date of export and excise duty or sales tax or both to the industry using duty-and tax-paid raw materials, chemicals and packing materials.

Also, a deduction of five per cent or less of the gross income, spent on publicity and promotional services, hospitality and any other similar permissible expenses, 40 per cent of the value of new additional fixed assets from taxable income to industries which diversify production through reinvestments or expand installed capacity by 25 per cent or more or modernise technology or develop ancillary industries, 10 per cent from gross profit that goes for technology or product development and skill enhancement and up to 50 per cent from the taxable income for the investment made on process or equipment for non-pollution.

Apart from all these, a foreign investor can employ an expert or technical personnel in the foreign investment project from his/her particular country with the permission of the Labour Department and these experts can remit up to 75 per cent of their income in convertible currency.

5. PPP Framework

The Build, Own, Operate and Transfer (BOOT) model for infrastructure development was incorporated in Nepal's planning documents as early as 1992, though the actual progress in project and legislation development was slow and lagged for over a decade. Nepal's PPP legislation first came into operation in the form of an Ordinance in August 2003 and was ratified as an Act in December 2006. Despite the BOOT policy adopted in the early 1990s, the Three-Year Interim Plan (2007-10) recognises that private sector investment in infrastructure has been moderate.

Under the BOOT policy, a privatisation cell in the Ministry of Physical Planning was established and put in charge of developing documentation related to concession agreements, guidelines, technical specifications, and feasibility studies. A project coordination committee under the chairmanship of the Vice-Chairman of the National Planning Commission was formed to complement the institutional framework by coordinating and monitoring project implementation and identifying and determining priority projects.

As of 2015, PPP activity has been focused on the provision of the most essential urban services, such as water supply and distribution, energy focused on development of the hydropower sector, sanitation, solid waste management, and, to a lesser extent, on road and urban transportation management.

6. International Investment Agreements

Nepal has signed Bilateral Investment Protection and Promotion Agreements (BIPPA) with six countries in chronological order - France, Germany, UK, Mauritius, Finland and India.

Nepal is part of the South Asian Free Trade Area agreement. In addition, Nepal is signatory to the Indo-Nepal Treaty of Trade and has also entered into a bilateral Power Trade Agreement with India in 2014 that provides a framework for market-based energy exchange. The Investment Board of Nepal also signed power-development agreements with Indian companies on two large hydroelectric projects.

7. Capital Markets and Investment Promotion

Various legal provisions have been introduced for developing the financing framework for the hydropower sector. These include

- Hydropower Development Policy, 1992
- Hydropower Policy, 2001
- Nepal Rashtra Bank's Directives

The Nepalese financial system consists of bank and financial institutions licensed by the Nepal Rashtra Bank (NRB) - the Central Bank of Nepal and other financial institutions. The financial institutions licensed by NRB are Commercial Banks, Development Banks, Finance Companies, Micro Finance Development Banks, Saving & Credit Cooperatives and NGOs (Financial Intermediaries). There were 232 banking and financial institutions (BFIs) in Nepal, as on Mid-March 2016. After the issuance of the "Bank and Financial Institutions Merger By-law, 2011" by NRB, there has been a consolidation in the BFI segment. Apart from the NRB licensed financial institutions, there are other institutions that are part of the Nepalese financial system and have the ability to invest in development projects like the Insurance Companies, Employee Provident Fund (EPF), Citizen Investment Trust (CIT), Hydroelectricity Investment & Development Company (HIDCL), etc. Out of these, HIDCL was established with the mission to mobilise funds from domestic and international resources to address the need for investments in large-scale hydropower projects.

Nepal's domestic financial market as a whole continues to remain underdeveloped and lacking in terms of its capacity to meet large scale investment demands. The capital market has been favouring investments in the hydropower sector with IPO subscriptions for hydropower companies being oversubscribed in the Nepal market and hydropower companies collecting a total of NPR 53.6 billion (0.49 billion USD at 2016 rates) upto 2014-15 from the primary markets.

All the BFIs operating in Nepal are regulated by Nepal Rashtra Bank (NRB). As per the NRB's directives, BFIs can invest up to 50 per cent of their capital fund in hydropower projects if the PPA has been concluded. If the PPA is not done, BFIs are allowed to invest only 25 per cent of their capital fund in such hydropower projects. Further, NRB has a mandatory provision requiring banks to invest at least 12 percent in agriculture and hydropower.

The total capital fund available with commercial banks, development banks and finance companies would be NPR 197 billion (as on Mar 2016). So the total capacity to invest in the hydropower sector would be NPR 98.6 billion (0.91 billion USD at 2016 rates).

The Employees Provident Fund (EPF) established under the Employees Provident Fund Act 1962 has been managing provident funds of civil servants, military, police personnel, teachers, personnel of government institutions and some other private companies. Besides providing borrowing facilities to depositors, the Fund has been investing in the real-estate business, industries, and hydropower projects. The EPF has already provided loans in various hydropower projects including Upper Tamakoshi, Rasuwagadi, Sanjen, Lower Sanjen and Mid Bhotekoshi.

4.3.7 Pakistan

1. Policy, Regulatory and Legal Framework

Pakistan's legal system is based on British common law and is strongly influenced by Islamic Sharia law for domestic and personal matters. The superior judiciary is composed of the Supreme Court, the Federal Sharia Court and five High Courts. The Supreme Court holds the highest jurisdiction. The lower courts are composed of civil and criminal district courts, and various specialised courts specifically covering areas such as; banking, customs and excise, smuggling, drug trafficking, terrorism, tax law, environmental law, consumer protection, insurance and corruption. Each province has a High Court, which hears appeals from District Courts in civil cases and Session Courts in criminal cases. It is common for one judge to preside over the District and Session Courts. The Supreme Court has jurisdiction over the Provincial High Courts, referrals from the federal government, and cases involving disputes among provinces or between a province and the federal government. Special courts and tribunals deal with taxation, banking, and labour.

2. Land Acquisition, Resettlement and Rehabilitation

The Government of Pakistan's current legislation governing land acquisition for public purposes is the Land Acquisition Act (LAA) of 1894 with successive amendments. The LAA regulates the land acquisition process and enables the federal and provincial governments to acquire private land for public purposes. Land acquisition is a provincial subject and each province has its own interpretation of the Act, and some have their own province specific implementation rules and regulations. The LAA has laid down the approach for acquiring and compensation of land and other properties for development projects. It stipulates various Sections pertaining to notifications, surveys, acquisition, compensation and apportionment awards and disputes resolution, penalties and exemptions. The LAA with its successive amendments provides a framework for facilitating land acquisition and enables the state government to acquire private land for public purposes. The LAA is the most commonly used law for acquisition of land and other properties for development projects.

3. Dispute Settlement and Arbitration

One of the main reasons for a decline in the foreign FDI is the difficulty faced by investors related to the timely settlement of their investment disputes. Pakistan is a member of the International Centre for the Settlement of Investment Disputes (ICSID). However, foreign investors are still concerned about how arbitration cases are resolved in Pakistan. Several high profile foreign investment disputes in the mining and energy sectors remain active cases in Pakistani courts.

International Arbitration: even though, the Pakistan Arbitration Act of 1940 provides guidance for arbitration in commercial disputes; typically it takes years to resolve commercial cases in the courts, and most foreign investors typically write a clause pertaining to the right to international arbitration into their contracts.

4. Foreign Direct Investment

The Government of Pakistan provides the same treatment and legal protection to foreign and domestic

investments in all sectors except defence and broadcasting. The 1976 Foreign Private Investment Promotion and Protection Act, Economic Reforms Act, and Investment Plan deal with the rights of foreign investors. The Foreign Private Investment Promotion and Protection Act provides that foreign investments will not be subject to higher income tax levels than similar investments made by Pakistani citizens. While Pakistan's law and economic policy does not discriminate against foreign investments, execution of contracts can be problematic because of the inefficiency and lack of transparency in domestic courts. Since 1997, Pakistan has established and maintained a largely open investment regime. The Investment Policy of 2013 has further liberalised the investment policies in most sectors.

Net inflows of FDI peaked at USD 5.4 billion in the fiscal year 2008, before dropping by 73 percent over the following five years. It improved marginally in FY 2014 with net FDI being USD 2.8 billion, an approximately 5.4 percent increase over FY 2013 inflows. The majority of FDI – USD 928 million – was in the information, communication and telecom sector (ICT) followed by USD 792 million in the upstream oil and gas sector.

The key challenges being faced by the foreign investors in Pakistan include the deteriorating security environment, a chronic energy crisis, and macroeconomic instability as the biggest drivers of the overall decline in FDI. The foreign investors in Pakistan report that the wide array of federal and provincial taxes and tax regulations are difficult to navigate. The tax regime is discriminatory and poorly organised with multinational corporations bearing the largest portion of the tax burden. Attempts to reform the tax system date back to the 1980s but have failed to deliver significant results, except for an increase in indirect (i.e. sales) taxes. Pakistan has one of the lowest tax-to-Gross Domestic Product (GDP) ratios in the world, approximately 10.4 percent in 2013.

5. PPP Framework

The government in Pakistan has supported PPPs as a means to address ongoing infrastructure challenges, including severe energy shortages and transportation inefficiencies that hinder economic development. The government launched its PPP program in the power generation sector in the early 1990s and more than twenty IPP deals have been signed since then. The Private Power and Infrastructure Board (PPIB) manage the government's IPP program. Recently an Alternate Energy Development Board (AEDB) was set up to promote IPPs in the renewable energy sector. Several wind and solar power projects have been started since then. The National Ports Authority (NPA) and the National Highway Authority (NHA) are responsible for PPPs in their respective areas.

In 2006, the Ministry of Finance established the Infrastructure Project Development Facility (IPDF) to develop policy and promote implementation in all tiers of the government. The PPP Policy of 2007, revised in 2010, facilitates PPPs across all infrastructure sectors and at both the federal and provincial level. This directly led to the setting up of PPP programmes in the provinces of Sindh and Punjab. Sindh approved its PPP legislation in 2009 and Punjab in 2014. A Sindh PPP Unit has been set up in the provincial Finance Department, while Punjab's PPP Unit is located in the Planning Department.

There is no specific PPP law at the federal level, but a regulatory framework has been provided by the PPP Policy in combination with the laws on concessions and other forms of investment, as well as the sector-specific National Power Policy of 2013.

6. International Investment Agreements

Pakistan signed the World Trade Organisation (WTO) Financial Services Agreement in December 1997, which led to improvement in the perception of investors. Foreign banks are permitted to establish locally incorporated subsidiaries, provided they have the minimum global tier-one paid up capital of USD five billion or they belong to member countries that participate in the same regional organisations

and associations as Pakistan (e.g., the Economic Cooperation Organisation – ECO and the South Asian Association for Regional Cooperation).

Pakistan has signed 12 FTAs out of which two are not in effect viz. Economic Cooperation Organisation Trade Agreement and Trade Preferential System of the Organisation of the Islamic Conference. Among the remaining 10, eight are bilateral FTAs. The other two are South Asian Free Trade Area and Preferential Tariff Arrangement-Group of Eight Developing Countries.

Pakistan is in the process of negotiating the signing of six FTAs among which five are bilateral and one is the Pakistan-Gulf Cooperation Council Free Trade Agreement.

Pakistan permits most-favoured-nation (MFN) exemptions in the financial and telecommunication sectors. MFN serves as a tool for promoting joint ventures and reciprocity among ECO countries (Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan, Afghanistan, Iran, Turkey and Pakistan). Islamic banks in Pakistan are subject to the same regulatory requirements as conventional banks.

7. Capital Market and Investment Promotion

In the 2013 Investment Policy, the Government of Pakistan eliminated minimum initial capital investment requirements for all sectors. There is no minimum requirement for the amount of foreign equity investment or upper limit on the share of foreign equity allowed, except in the airline, banking, agriculture and media sectors. In the social and infrastructure sectors, 100 percent foreign ownership is allowed. Only Pakistanis can invest in small-scale mining valued at less than Rs. 300 million (about USD 3 million).

The Government of Pakistan's investment policy provides domestic and foreign investors with the same incentives, concessions, and facilities for industrial development. Sales tax on industrial machinery and customs duty on imported agricultural machinery have been abolished. Additionally, export-oriented industries have been granted customs duty exemptions on the import and purchase of raw materials. Custom duty for machinery imported by the manufacturing and social service sectors are under five percent.

The following improvements have been introduced to increase the participation of private players.

- Exemption from Corporate Income Tax, Turnover Tax, Withholding Tax and Sales Tax, only five per cent concessionary import duty on plant and equipment not manufactured locally
- The Government of Pakistan guarantees obligations of the power purchaser and provinces
- The Government of Pakistan provides protection against political force majeure, change in law and change in duties and taxes
- For hydropower projects Water Usage Charge (WUC) will be paid @ Rs. 0.425/kWh (USD 0.00406/kWh) to the province where the project is located
- Attractive Return on Equity (ROE) provided by the regulator – imported coal: 27.3; local coal: 29.5; Thar coal: 34.5; hydro: 23 per cent ROE; Gas/LNG: 18 per cent ROE
- Tariff indexation for inflation (US CPI & Pak WPI)

4.3.8 Sri Lanka

From an investor's viewpoint, the power and petroleum sectors are particularly challenging, as the decision-making authority is highly fragmented, and the capital investments required are substantial.

Trade union opposition at both the Ceylon Petroleum Corporation and the Ceylon Electricity Board (CEB) make reform of these loss-generating State Owned Enterprises (SOEs) very difficult.

There has been a consistent policy of advocating government control of strategic enterprises and expanding the role of the state. Post war rebuilding witnessed huge investments in infrastructure, largely financed through bilateral arrangements with limited FDI in these projects. The projects, which were valued at approximately USD three to six billion, range from the construction of major ports, international airports, and power stations, to expressways, reclaimed land, highways, railways, and telecommunication towers. There has been a review of some of the projects. The investors' community cite the risks of contract repudiation, cronyism, damage to reputation, and de facto or de jure expropriation as concerns, although the new government has started to address these issues.

I. Policy, Regulatory and Legal Framework

Private sector participation in infrastructure became prominent in the late 1990s. To make the process transparent and clear, the Guidelines on Government Tender Procedure Part II (1998) were put in place for private infrastructure projects. An administrative structure, the Bureau of Investment in Infrastructure, was also set up to operate within these guidelines and to facilitate private sector participation in infrastructure.

Sri Lanka's legal system reflects diverse cultural influences. Criminal law is fundamentally British. Basic civil law is Roman-Dutch. Laws pertaining to marriage, divorce, and inheritance are ethnic. Sri Lankan commercial law is almost entirely statutory. The law reflects Colonial British law, but amendments have largely kept pace with subsequent legal changes in the United Kingdom. Several important legislative enactments regulate commercial matters: the Board of Investment Law; the Intellectual Property Act; the Companies Act; the Securities and Exchange Commission Act; the Banking Act; the Industrial Promotion Act; and the Consumer Affairs Authority Act. Other recent policies that are of concern include the November 2011 Underutilised Assets Act, which resulted in the seizure of 37 companies and assets.

Sri Lanka's court system consists of the Supreme Court, the Court of Appeal, Provincial High Courts and the Courts of First Instance, i.e., District Courts (with general civil jurisdiction) and Magistrate Courts (with criminal jurisdiction). The Provincial High Courts have original, appellate, and reversionary criminal jurisdiction. The Court of Appeal is the intermediate Appellate Court with a limited right of appeal to the Supreme Court.

All commercial matters, including Intellectual Property claims, exceeding the value of LKR three million (approximately USD 23,000), fall within the jurisdiction of the Commercial High Court of Colombo. A number of tribunals also exercise judicial functions, such as the Labour Tribunals that hear cases brought by workers against their employers. Litigation can be slow and unproductive. Monetary judgments are usually made in local currency, but procedures exist for enforcing foreign judgments.

The Strategic Development Project Act of 2008 (SDPA) provides generous tax incentives for large projects that the Cabinet identifies as Strategic Development Projects. Other laws affecting foreign investment are the Securities and Exchange Commission Act of 1987 as amended in 1991 and 2003, the Takeovers and Mergers Code of 1995 (revised in 2003), and the Companies Act of 2007.

Competition laws are enacted through the Consumer Affairs Authority. However, the Consumer Affairs Authority's provisions for competition are weak because there are no provisions to deal with monopolies, mergers and acquisitions, or dominant positions. Despite the lack of an overall competition policy and regulatory framework, sector-specific institutions such as the Telecommunications Regulatory

Authority and the Public Utilities Commission have been established or are envisaged to ensure competition. The government established the Public Utilities Commission of Sri Lanka (PUCSL) in 2002 as a regulator for the energy and water sectors under the PUCSL Act 2002. Parliament approved the Sri Lanka Electricity Act in March 2009, empowering PUCSL to regulate the electricity supply industry from April 2009. The first licenses to CEB (generation, transmission, and distribution), LECO (Lanka Electricity Company Private Limited), and some generating companies were issued in October 2009. In 2010, PUCSL established the Tariff Methodology and a road map for tariff reforms and rebalancing. The tariff filings are being undertaken regularly and tariff determinations announced by the Commission. Other regulatory interventions on customer service (commercial quality), supply quality (technical quality), grid and distribution codes, disclosure of plans, etc. are in progress but the degree and speed of implementation is slow.

2. Land Acquisition, Rehabilitation and Resettlement

Foreigners are prohibited from the purchase of lands, and lease transfers to foreigners are taxed. The Cabinet can also approve a land purchase for an investment in the national interest, provided there is a substantial foreign remittance for the purchase of the land. Secured interests in property in Sri Lanka are generally recognised and enforced. A fairly reliable registration system exists for recording private property including land, buildings, and mortgages, although problems exist due to fraud and forged documents.

Apart from the Underutilised Assets Act, the land acquisition law empowers the government to take over private land for public purposes. Compensation is paid as per government valuation, which is considered fair by the investors' community.

3. Dispute Settlement and Arbitration

All commercial matters, including Intellectual Property claims, exceeding the value of LKR three million (approximately USD 23,000) fall within the jurisdiction of the Commercial High Court of Colombo. A number of tribunals also exercise judicial functions, such as the Labour Tribunals that hear cases brought by workers against their employers. Litigation can be slow and unproductive. Monetary judgments are usually made in the local currency, but procedures exist for enforcing foreign judgments.

Overall, Sri Lanka's record in handling investment disputes is complicated. Sri Lanka's courts have a mixed record with regard to upholding the sanctity of contracts and the legal procedures can take long time.

4. Foreign Direct Investment

The Bureau of Investments (BOI) is an autonomous statutory agency, which is the primary government authority responsible for investments. BOI promotes the following sectors as priority sectors for FDI: tourism and leisure; infrastructure; knowledge services; utilities; apparel; export manufacturing; export services. The BOI is intended to provide "one-stop" services for foreign investors, with duties including approving projects, granting incentives, and arranging utility services. The principal law governing foreign investment is Law No. 4, created in 1978 (known as the BOI Act), as amended in 1980, 1983, and 1992, along with implementing regulations established under the Act. The BOI Act provides for two types of investment approvals.

- BOI is empowered to recommend concessions to companies satisfying certain eligibility criteria on minimum investment under Section 17 of the Act. Such companies are eligible for generous concessions for investments.
- Investment approval under Section 16 of the BOI Act permits companies to operate under the "normal" laws of the country and applies to investments that do not satisfy eligibility criteria for BOI incentives.

In areas where foreign investment is permitted, foreign investors receive national treatment and may benefit from the wide range of incentives provided by BOI or from the Treasury. The government allows 100 percent foreign investment in any commercial, trading, or industrial activity other than a few specified sectors. Foreign investments in the areas listed below are restricted to 40 percent ownership. Foreign ownership in excess of 40 percent must be preapproved on a case-by-case basis by the BOI. Foreign investors enjoying tax holidays are exempted from the tax.

Sri Lanka generally has investor-friendly conversion and transfer policies. Companies note they can repatriate funds relatively easily. Sri Lanka liberalised exchange controls on current account transactions in 1994, and in 2010-2012, the government relaxed exchange controls on several categories of capital account transactions.

No barriers exist, legal or otherwise, to the expeditious remittance of corporate profits and dividends for foreign enterprises doing business in Sri Lanka. The average delay period for remitting investment returns, interest, and principal on private foreign debt, lease payments, royalties, and management fees through normal legal channels is one to four weeks.

All stock market investments can be remitted without prior approval of the Central Bank through a special bank account. Investment returns can be remitted in any convertible currency at the legal market rate.

5. PPP Framework

In the past decade, Sri Lanka has successfully harnessed PPPs for creating and improving infrastructure in several sectors including ports, power and telecom. The government's interest in financing selected large-scale infrastructure projects rekindled with the "Mahinda Chinthana Vision for the Future" (Department of National Planning, Ministry of Finance and Planning, 2010). This 10-year strategy outlines the government's intention to involve the private sector in infrastructure development as well as to improve the performance of state owned enterprises.

Based on the Public Utilities Commission of Sri Lanka Act 2002, Sri Lanka set up an independent multi-sector regulator with the authority to step in to certain infrastructure sectors by changing the appropriate sector legislation. The Act initially provided for the regulation of the electricity and water service sectors; the petroleum industry was added in 2006 to the list of regulated industries. In addition, a unit within the Ministry of Finance to deal with new investments is being created.

6. International Investment Agreements

Article 157 of the country's Constitution guarantees the safety of investment treaties and agreements approved by parliament by a two-thirds majority. Sri Lanka has signed bilateral investment protection agreements with 28 countries and also has bilateral Double Tax Avoidance Agreements (DTAA) with 38 countries. Sri Lanka is a founder member of MIGA, which provides a safeguard against expropriation and non-commercial risks.

Sri Lanka is a signatory to five FTAs, out of which three are bilateral in nature and is in the process of negotiating for another two FTAs. Sri Lanka is part of South Asian Free Trade Area and is in negotiation for entry into the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) Free Trade Area.

7. Capital Markets and Investment Promotion

The capital market in Sri Lanka is reasonably developed with the Securities and Exchange Commission (SEC) responsible for covering the Colombo Stock Exchange, unit trusts, stock brokers, listed public

companies, margin traders, underwriters, investment managers, credit rating agencies, and securities depositories. Portfolio investment is encouraged. Foreign investors can purchase up to 100 percent of equity in Sri Lankan companies in numerous permitted sectors. The state consumes over 50 percent of the country's domestic financial resources and has a virtual monopoly on the management and use of long-term savings in the country. In the past, high budget deficits have caused interest rates to rise and resulted in higher inflation. Both interest rates and inflation declined in 2015.

Table 13 Summary of Investment Framework in South Asia

Afghanistan	Bangladesh	Bhutan	India	
Foreign Direct Investment				
No restrictions on converting, remitting or transferring funds associated with investments	100% foreign equity participation is allowed No min. capital requirement and EPZ in designated area	70% foreign equity participation is allowed in all sectors Min. capital requirement of USD 1 million in manufacturing	100% FDI is allowed in India's power sector with only exception being 49% in petroleum refining, 49% in power exchange EPZ in designated area	
Public Private Partnership				
No policy promoting private sector participation, but it has been included in the energy strategy	Private sector participation is present in upstream oil & gas sector and electricity sector	Private sector participation is encouraged especially in hydropower generation	Private sector present in most sections of the energy value chain	
Financial Incentives				
Tax holidays of up to 10 years, subsidised land, public loans with five to ten year maturities	100% repatriation of capital and dividends is allowed Tax holiday for 7 years Tax exemption on royalties, interest on foreign loans and capital gains from the transfers of shares 5% import duty on capital equipment and spare parts for initial installation	100% repatriation of profits and dividend subject to approval Selective tax exemption	100% repatriation of capital, profits and dividend is allowed after payment of tax Income tax holiday of 10 year for EPZ firms and 5 years for other investors. Access to finance for export-oriented industries at concessional interest rates Tax relief under avoidance of double taxation agreements 10 year income tax holiday for firms Located in EPZ.	

Retained profits finance a significant portion of private investment in Sri Lanka. Commercial banks are the principal source of bank finance. Bank loans are the most widely used credit instrument for the private sector. Large companies raise funds through corporate debentures as well. Local companies are allowed to borrow from foreign sources. Foreign investors are allowed to access credit on the local market and are free to raise foreign currency loans.

4.4 Investment Framework in South Asia - Summary

4.4.1 Investment Promotion

	Maldives	Nepal	Pakistan	Sri Lanka
	100% foreign equity participation is allowed No min. capital requirement for investment	100% foreign owned or joint venture in all sectors, except for negative list industries No min. capital requirement for investment	100% FDI in all sectors. Minimum capital requirement of USD 0.3 million in infra and EPZ in designated area	100% foreign equity participation is allowed in all sectors Min. capital requirement of USD 0.5 million and country-wide EPZ status
	Limited private sector participation in the energy sector	Private sector participation is already present in electricity generation	Private sector participation is allowed in the electricity sector	Private sector is allowed in petroleum distribution and in electricity generation
	100% repatriation of profits and dividends are allowed	100% repatriation of dividends and capital is allowed Corporate tax rate for export-oriented industries is 8% of profit or 0.5% of export earnings Corporate tax rate for import competing industries is 20%	100% repatriation of capital, dividend and profits is allowed No custom duty on imports of plant, machinery & equipment for export-oriented and hi-tech industries Zero import tariff on plant and machinery (not available locally) used for agriculture	100% repatriation of profits and dividend is allowed Expatriates' income is taxed at a concessional rate of 15% for 5 years Exempted from income tax on capital gains arising from share transfers duty draw back for export-oriented industries

4.4.2 Investment Protection

The following Table-14 illustrates the South Asian countries' readiness to open energy trade.

Table 14 Regulatory Framework for Intra-regional Power Trade

Afghanistan	Bangladesh	Bhutan	India	
A. Policy and Regulatory				
Private Investment Law, 2005 permits investment in all sectors except nuclear power	There is a Policy. Unbundling of BPDB is not complete. Energy regulator present. BERC for downstream oil and gas sector and electricity sector	There is a Policy. Partially unbundled. Energy regulator present. BEA for electricity sector	There is a Policy for generation, transmission and distribution. Energy regulator is present. Central and state regulators for electricity and a central regulatory for oil and gas	
B. Legal and dispute resolution				
Weak legal and dispute resolution framework	Guarantee against nationalisation International convention for settlement of industrial disputes		Settlement of disputes is governed by the Indian Arbitration Act 1940 UN Convention for recognition and enforcement of foreign arbitral awards	
C. Land, environment and R&R				
Constitution and Investment Law prohibits foreign ownership of land The Land Expropriation Law, 2005 addresses land expropriation process and legal rights	Article 42 of Constitution deals with the requisition and acquisition of land by the Govt. Bangladesh Environment Conservation Act, 1995 and Environment Policy 1992 deals with matters related to environment	The Land Act 2007 provides mode of acquisition of registered land. Govt. can acquire land for hydro projects at chargeable basis Developer has responsibility of rehabilitation and resettlement.	Land acquisition is a big issue in India and may take several months. Right of Way has also been a cause for hindrance in private sector investment. New Land Bill introduced.	

Source: Deloitte Analysis, ADB Report on Energy Trade in South Asia - Opportunities and Challenges

	Maldives	Nepal	Pakistan	Sri Lanka
	No strict policy. MEA regulates electricity sector	New legislation for unbundling is under consideration by the parliament. ETFC to fix tariffs Legislation to establish NERC is under consideration	There is a Policy for generation, transmission and distribution. Energy regulators present. NEPRA for electricity sector OGRA for oil and gas sector.	PUSCL is the regulator for electricity and petroleum
		Guarantee against nationalisation Dispute settlement through mutual consultations and in accordance with the arbitration rules of UN Commission on International Trade Law	Guarantee against nationalisation Settlement of dispute through the International Commission on Settlement of Investment Disputes	Protection against nationalisation under the bilateral investment agreements and Constitutional guarantee under International Convention for the Settlement of Investment Disputes
	Amendment to Tourism Act in 2010 allows investors to lease an island for 50 years.	Govt. has introduced Land Acquisition, Resettlement and Rehabilitation Policy in March 2015.	Land acquisition is a provincial subject and each province has its version and interpretation of the Land Acquisition Act	Foreigners are prohibited from owning land and lease transfers to foreigners are taxed.

4.5 Investment Risk Assessment

Afghanistan has a high FDI facilitation risk because of internal issues such as corruption and a poor capital market along with high political risk. The PPP framework risk is low, as it has well defined PPP policies and structure. Taxation and incentives poses medium risk. Investment protection risk is high in Afghanistan because of a poor policy and regulatory regime, poor legal system and security threats.

Bangladesh has a low FDI and taxation risk but high PPP framework risk. Bangladesh has a clear policy in place for investment protection, thus the risk around policy is low. Legal and dispute resolution risk is high in Bangladesh because of its slow and weak legal system, no interest is provided for delay in proceedings. Land acquisition and environment risk is moderate in Bangladesh because of disputes over titles, as many people do not register their properties.

Bhutan has investor friendly policies and significant participation of private players because of its encouraging policies. Taxation risk remains high in Bhutan as it has more than 100 per cent debt to GDP ratio, which can trigger the government to increase taxes disproportionately at any time. Bhutan has high policy and regulatory risk as policies are evolving over time and need to incorporate new needs and facilitate private participation. Bhutan has a strong Land Act and the government can acquire land for private parties on a chargeable basis but its environment and Rehabilitation and Resettlement (R&R) rules are evolving over time, hence the overall risk is moderate because of low risk in land and high risk in environment and R&R rules.

India has well defined policies and structures in place for FDI facilitation also its PPP framework is strong and it has witnessed significant private sector participation in the power sector. Tax is on the higher side as compared to other South Asian countries but fairly stable over a period of time. India's legal policy, dispute resolution mechanisms are organised and contain low risk.

FDI facilitation risk is high on account of high political instability for Maldives. Most of Maldives' generation is diesel based and owned by private parties. Going forward, it has well established policies for private participation in renewables. Due to the small size of its economy and high dependence on tourism, Maldives poses significant risk of taxation. Maldives has low risk of policy and legal and dispute resolution poses medium risk, as there have been instances of contract repudiation in the wake of the change in political regime. Land acquisition laws pose a risk as last year it allowed foreigners to own land in Maldives, which had been banned earlier.

Nepal provides a stable PPP framework while FDI risk is high due to political risks. Taxation risk is minimal. The policy, regulatory process in Nepal has been evolving over time while legal and dispute resolution mechanisms are weak. Land and environmental laws have been stable over time.

Pakistan has political risks and security threats due to various internal reasons. Its PPP framework is high risk. Taxation and incentives have moderate risk as they are not transparent and breed corruption. The policy and regulatory setup is relatively stable with few risks in the legal system and dispute resolution. Land and property rights provide incomplete protection for the acquisition and disposal of property.

Sri Lanka also has high political risk, though its PPP framework is sound with low volatility in the taxation and incentive regime. Its record in legal recourse is very poor. Policy and regulatory matters along with land and environmental rules are moderately risky.

Figure 11 Investment Risk Assessment

	Afghanistan	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka
Investment Promotion								
FDI Facilitation								
PPP Framework								
Taxation & Incentives								
Investment Protection								
Policy & Regulatory								
Legal & Dispute Resolution								
Local Approvals								
Very Weak Weak Moderate Strong Very Strong								

Source: SARI/EI Analysis

5 International Review and Recommendations for SACs

5.1 Coverage

The review of the international experience in the evolution of the power pools and regional frameworks shows that arrangements started from simple bilateral arrangements to support each other, which have grown into more complex commercial and legal arrangements to manage operations and regulate transactions. This evolution involved several initiatives and transition arrangements and led to the streamlining of processes. The structured regional power pools facilitated decision making for investments to flow in from outside the region as well as drive the intra-regional investments into the CBET projects.

Best practices emerging from the review and methods/actions adopted worldwide have been analysed for promoting trade in the South Asia region. A brief description of the regions being reviewed is given below.

5.1.1 Greater Mekong Sub-region (GMS)

The Greater Mekong Sub-region (GMS) comprises of Cambodia, the People's Republic of China (PRC), Lao People's Democratic Republic (Lao PDR), Myanmar, Thailand, and Vietnam. In 1992, with Asian Development Bank's (ADB) assistance, the six countries entered into a programme of sub-regional economic cooperation, designed to enhance economic relations among these countries.

1. Institutional setup

A formal institutional structure for the programme was agreed upon in 1995. Under this, the highest coordinating body was the GMS Summit attended by Prime Ministers of the participating countries. Policy direction and coordination is generally provided by the ministerial meetings, senior officials' meetings and Sectoral Working Groups. The working groups are responsible for operational matters relating to the implementation of the programme. The GMS Programme does not have a formal secretariat and ADB acts as a de facto Secretariat to provide logistical support to the GMS institutions.

2. Objectives

The Greater Mekong Sub-region (GMS) Energy Roadmap, adopted by the GMS countries at the 15th GMS Ministerial Conference in Thailand in 2009, aims to deliver sustainable, secure, competitive and low carbon energy in the sub-region with focus on:

- Enhancing access to modern energy
- Developing low carbon and renewable domestic resources
- Improving regional energy cooperation and energy security
- Promoting PPP and private sector participation, particularly through SMEs for sub regional energy development.

The road map is being implemented with the initial emphasis on promoting renewable energy and energy efficiency and enhancing the environmental sustainability of regional energy plans and programmes. Establishing an integrated electricity market is one of the major components of such cooperation.

Electricity trade in the region takes place through bilateral arrangements while the integrated, competitive regional power market is still in a conceptual phase.

The objectives for the regional power market, as identified by the GMS Programme countries are set out in the Policy Statement issued in January 2000:

- To promote the efficient development of the electric power sector in the GMS with the objective of aiding economic growth;
- To promote opportunities for extended economic cooperation between members in the field of energy;
- To facilitate the implementation of priority electric power projects;
- To address technical, economic, financial and institutional issues relevant to GMS electric power development;
- To promote electric power trade, where economic, to further these objectives; and
- To protect and improve the environment through the adoption of appropriate technologies and plans.

3. Ownership and market structure

The various markets are dominated by state-owned utilities, although there is large scale penetration by independent power producers (IPPs) in all countries except Vietnam. In several cases, these IPPs have been developed by entities which themselves are state-owned. Generation, transmission and distribution are vertically integrated in Cambodia, Lao PDR and Vietnam. In Thailand, generation and transmission are vertically integrated while in Myanmar, transmission and distribution are integrated. No substantial competitive power markets exist in the region, either at the wholesale or retail level. National transmission companies own the interconnections for bilateral power exchanges.

National Regulatory Agencies (NRAs) have been established in Cambodia, China, Thailand and Vietnam. The independence and powers of these regulators varies significantly. The NRA in Cambodia is probably the most independent, with the greatest powers over pricing and planning. The agencies in Thailand and Vietnam oversee planning and have a major role in setting prices but operate within frameworks where final decisions are generally taken by the government. Currently, NRAs have no direct responsibility for regional electricity trade and their jurisdiction ends at national borders.

4. Financing

The financing for export projects has come from a mix of national utilities, international developers, commercial banks and International Financial Institutions (IFIs). The ADB and World Bank are supporting the physical development of regional interconnectors through financial support and technical assistance. During the initial phase of development, the framework was built on the cross border interconnections, which were built for export projects and the bilateral PPAs. The physical infrastructure lacks assets that have been specifically developed for CBET as part of the market (i.e., for use by third parties and for transit). Interconnector facilities are generally owned by the transmission utility in the country in which they are located, with the exception of transmission lines in Lao PDR, which are owned by the related project company.

The indicative regional master plan prepared under ADB funding also provides a set of projections of future energy trade between GMS member countries, based on optimising flows within the region.

5. Investment facilitation

The development of the regional power market should generally be expected to reduce emissions across the region—primarily through the substitution of gas-fired generation in Thailand and coal and gas-fired generation in Vietnam with hydropower generated in Cambodia, Lao PDR and Myanmar. Interconnections can also be expected to reduce emissions substantially, particularly in Cambodia. Although not currently envisaged, in the longer term it may allow for expanded development of the region's renewable energy resources—e.g., wind generation in Vietnam—relative to what individual countries could achieve.

The GMS power market has emerged from agreements among national governments in the region to cooperate in a range of sectors, one of which is energy. However, the form that the evolving market is taking is largely a response to developments in power trade on a bilateral basis. The existing regional energy sector institutions are building on bilateral arrangements as an initial step to a more integrated regional power market rather than designing or creating a market. The emphasis on the role of national governments and agencies rather than regional institutions is shown in the absence of a formal regional secretariat and the composition of existing regional institutions—whose membership consists of representatives of national utilities and government agencies.

6. Case Study - Nam Theun Project

The Nam Theun 2 Project (NT2) involves the construction of a 1,070 MW hydroelectric storage project in Lao PDR with the capacity to deliver 5,600 GWh annually to Thailand via a dedicated interconnector. A small portion of the power produced is supplied to customers in Laos. NT2 is an enclave project in which output from a newly-built generation facility is almost entirely devoted to export. Most of the contracted output is on a take-or-pay basis at prices agreed upon in a power purchase agreement.

A special purpose vehicle, the Nam Theun Power Company (NTPC), was created to build, own, and manage the facility. NTPC is incorporated in Laos under Lao law as a foreign investment company. It is a joint venture between: Electricité de France International (35%), Lao Holding State Enterprise (25%), Italian-Thai Development Public Company, Ltd. (15%), and Electricity Generating Public Company (EGCO) of Thailand (25%).

The concession agreement provided the NTPC compensation if changes in local law had a material effect (outside of specified financial thresholds) on the project's operation and returns to the company. There is complementary protection for the Government of Laos against changes that result in increases in the company's revenues, in which case the company must pay compensation to Government of Laos. The Electricity Generating Authority of Thailand (EGAT) PPA includes protection for both companies against changes in the laws in either country (except in relation to taxes) that affect either party's financial position. The company in the country whose law has changed is required to compensate the other company. The PPA also accounts for the possibility of electricity market reform in Thailand during the first 13 years of the PPA. EGAT has the option of incorporating the NTPC purchases into a power pool or other mechanisms subject to certain conditions.

NTPC brings together project developers, representatives of the host governments, and (indirectly) the power purchasers. The PPA required the company to provide several forms of financial security guaranteeing its obligations to EGAT. These were in the form of bank guarantees, cash deposits and a mortgage over NTPC's physical assets. In the PPA each party agreed to waive sovereign immunity. This protects the project from changes in government or withdrawal of support midcourse. This is generally executed in the form of implementation agreements.

The project structure also addressed several other political, contractual and legal risks through the international funding agencies' participation. The World Bank Group provided Partial Risk Guarantee (PRG) and MIGA guarantees to cover commercial lenders. PRG covers lenders against the risk of a public entity failing to perform its obligations w.r.t a private project; it ensures payment in case of a default resulting from non-performance of contractual obligations undertaken by governments or their agencies in the private sector.

The exchange rate risk has been addressed through the PPAs providing project specific tariffs in both U.S. dollars and Thai bahts with a split that matches the currency proportions in debt financing. This provides a natural hedge to NTPC against exposure to fluctuations in the currencies of the debt during

the lifetime of the PPA. Interest rate risk on the floating-rate U.S. dollar-denominated debt would be hedged through an interest rate swap whereby the debt would effectively be converted to a fixed rate. The concession agreement includes clauses to entitle the NTPC to use bank accounts in the project currencies in Laos and a number of other countries. It also requires the Government of Laos to direct the Bank of Laos to enable foreign exchange transactions.

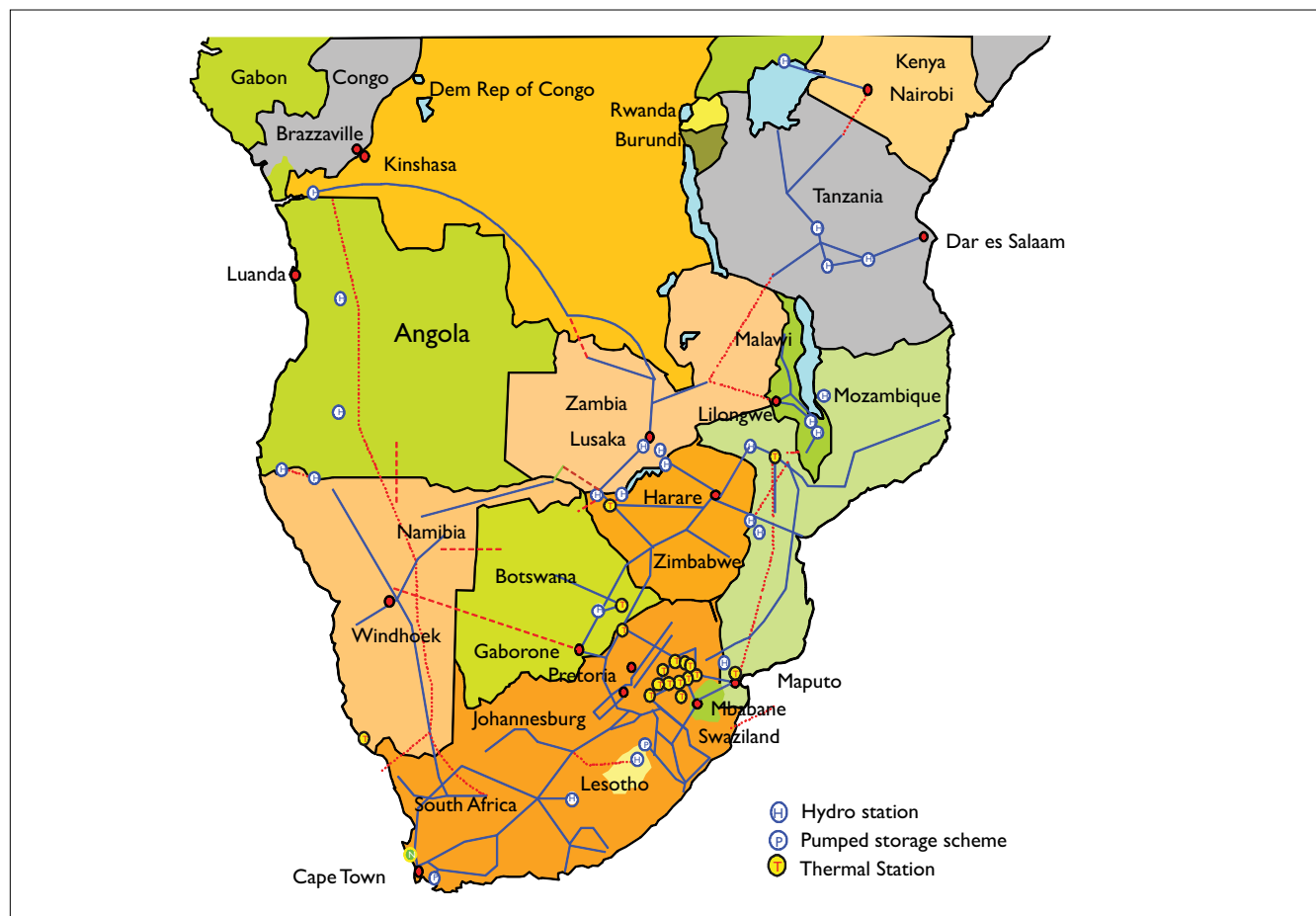
5.1.2 South African Power Pool (SAPP)

The South African Power Pool (SAPP) is a regional body that was formed in 1995 through a Southern African Development Community (SADC) treaty to optimise the use of available energy resources in the region and support one another during emergencies. The pool includes 12 countries (fig-12) in the mainland African Region viz. Angola, Botswana, Democratic Republic of Congo (DRC), Lesotho, Madagascar, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe.

I. Institutional setup

SAPP is characterised by regional energy disparities combined with a diverse range of power sources. The availability of large low cost hydroelectricity in the north combines with large quantities of affordable coal based in South Africa to supply much of the electricity traded in SAPP. It was originally established as a “loose pool”, with regional power cooperation being the main goal. Starting in the early 2000s it began moving towards a more competitive pool structure. SAPP is based on a set of agreements as opposed to formal laws.

Figure 12 South African Power Pool (SAPP)



The Inter-Governmental Memorandum of Understanding (MOU), signed in August 1995, and its subsidiary agreements, the Inter-Utility Memorandum of Understanding, the Agreement between Operating Members, and the Operating Agreement, outline the basic operating conditions of the pool. The Inter-Utility Memorandum of Understanding was signed in December 1995 by the national power utilities of member countries to establish the specific rules and procedures upon which SAPP would operate.

The Inter-Governmental MOU states that the SAPP agreements and operating conditions must be in accordance with the SADC treaty, and that disputes among operating members would be settled in the SADC Dispute Resolution Tribunal. Furthermore, the energy ministries of SADC countries are the responsible parties for admitting new members into SAPP, and for resolving major policy issues of the pool. As outlined in the current MOU, full membership of SAPP is limited to the national utilities of member countries, which are designated by the government of that country. There are two types of members - operating members and non-operating members.

The highest governing body of SAPP is the executive committee, which comprises of the chief executives of the various power utilities participating in SAPP. The committee receives and refers matters such as requests for membership by non-SADC members and major policy issues to the SADC energy ministers for onward consideration. The management committee, which comprises of officials from the member utilities, oversees the running of SAPP. Four sub-committees, including planning, operating, market and environmental sub-committees are responsible to the management committee.

SAPP revised its Inter-Utility Memorandum of Understanding in April 2007. In terms of the revised Inter-Utility Memorandum of Understanding, the SAPP membership falls into the following categories:

- National Power Utilities;
- Independent Power Producers (IPPs);
- Independent Transmission Companies (ITCs); and
- Service Providers

International trade in SAPP is complicated by the different regional, national and even municipal (provincial) regulations within the system boundary.

SADC has established the Regional Electricity Regulatory Association (RERA) as the regulators' association to assist in regional strategy and implementation. This has helped in harmonising the region's regulatory policies on energy and its sub sectors. RERA of Southern Africa is a formal association of independent electricity regulators whose establishment was approved by the SADC ministers responsible for energy in Maseru, Lesotho on 12 July 2002. The Association was officially launched in Windhoek, Namibia on 26 September 2002 and it provides a platform for effective co-operation between independent electricity regulators within the SADC region.

2. Objectives

The key objectives of SAPP are:

- Facilitate the development of a competitive electricity market in the Southern African region;
- Give the end user a choice of electricity supply;
- Ensure that the Southern African region is the region of choice for investments by energy intensive users; and
- Ensure sustainable energy developments through sound economic, environmental and social practices.

All of the items listed in the vision statement above relate to the objectives of electricity market reform. It is for this reason that this research focussed on SAPP as a potential platform to achieve a liberated market.

3. Market

During the initial phase, the market mechanism was based on bilateral contracts. These contracts generally cover a period from one to five years, but could be longer. The agreements provide for assurance of security of supply but are not flexible to accommodate varying demand profiles and prices. The mechanism provides for trade in peak, off-peak and standard times. The prices were negotiated between willing buyers and willing sellers. The bilateral contracts mechanism accounts for 90-95 per cent of energy traded on the system.

The Short-Term Energy Market (STEM) was introduced in April 2001 as a precursor to full competition. It catered for 5-10 per cent of annual electricity energy trade and had provisions for daily and hourly contracts. It operates mainly in off-peak periods, as generators generally do not have spare capacity in peak periods. The market mechanism is based on participants sending bids and offers to the SAPP Coordination Centre. The Coordination Centre then matches bids and offers and sets a price based on matching offers from bidders and sellers.

The SAPP Day Ahead Market (DAM) is a non-regulated market, which started in April 2015. SAPP started competitive DAM, which operates in parallel with the bilateral market. SAPP's specific trading platform (SAPP-MTP) developed in 2015 includes a new Physical Forwards Market and a new Intra-Day Market. For DAM, the nodal pricing mechanism is in place.

4. Ownership

Most of the interconnectors in SAPP are publicly owned, some through SPVs. A few examples of private investments also exist like Copperbelt Energy Corp (Zambia-DRC link).

5. Financing

The financing of the cross border interconnections has been done by IFIs, various development banks with the involvement of national governments.

6. Investment framework

SAPP's original agreements were drawn from the bilateral and multilateral agreements already existing (prior SAPP) among the member countries. SAPP's guiding framework was based on intergovernmental MOU that authorised and guaranteed inter-utility MOUs and operating agreements. An inter-utility memorandum of understanding deals with the issue of ownership and rights among the participants.

In SAPP, the World Bank and some national export credit agencies offer political risk guarantees. Some African countries have offered sovereign guarantees, e.g. Tanzania for IPTL, Nigeria for AES Barge, Cote d'Ivoire for Azito and Ghana for Takoradi II Projects.

5.1.3 Gulf Cooperation Council (GCC)

The GCC comprises interconnections between Kuwait, Saudi Arabia, UAE, Bahrain, Oman and Qatar. On December 31, 2001 the GCC countries agreed to establish the GCC Interconnection Authority (GCCIA) for the purpose of interlinking the power systems of the GCC countries. As a result, a Royal decree no. M/21 dated July 28, 2001 was declared to establish the Authority with its official domicile in Dammam, Kingdom of Saudi Arabia.

The GCC electricity grid when completed would allow for electricity exchanges between countries - Kuwait and Saudi Arabia to export or import up to 1,200 MW from the grid; Bahrain and Qatar to

trade 600 MW and 750 MW respectively; UAE and Oman to trade 900 MW and 400 MW respectively. The GCC control centre is located in Ghunan in Saudi Arabia.

1. Institutional Setup

GCCIA is a joint stock company established in 2001 with authorised capitalisation of USD 1,300 million and owned by the electricity ministries in the six GCC states. It is the owner and responsible body for GCC interconnections which link power systems in the six GCC states. A Board of 12 directors and two representatives from each country manage the GCCIA. The Chairmanship is rotated every three years.

The institutional structure and governance arrangements for the implementation and operation of the GCCI electricity scheme comprises of the following.

- The GCC Ministerial Committee (GCCMC) is at the apex of the framework and comprises of ministers of electricity and water from each of the member countries.
- The Regulatory Advisory Committee advises the GCCMC.

The GCCIA Board together with the planning committees and the operation committees, which are also nominated by GCC member states, form a General Assembly. The Assembly makes decisions on codes and agreements governing trade among member utilities and governing the activities of the GCCIA itself.

2. Objectives

GCCI's long-term comprehensive development strategy goal envisaged greater economic integration of the GCC countries and covered much more than electricity. For electricity, the GCC countries viewed the interconnection primarily as a mechanism to share generating reserves in emergency situations, to increase the reliability and security of the power supply, and to reduce the investment requirements in reserve capacity.

Power trading is one of the primary objectives of the GCCIA interconnector. In the year 2016, the power trading volume in the GCC region was 1,320 GWh with five of the six member states participating in trading activity and concluding more than 15 contracts. GCCIA is now working on the development of a power market in the GCC region.

3. Ownership

The ownership of transmission assets, including interconnectors would be with the GCCIA, the joint holding company.

4. Financing

The financing for the approved interconnection scheme is obtained from national governments while GCCIA's administration costs, set-up and annual, are funded on a shared basis. It was agreed among the GCC countries that costs would be shared in proportion to the net present value of estimated reserve capacity savings. Each country was responsible for sourcing their share of the capital required, which could be combinations of debt or equity as decided by each member state.

5.1.4 Brazil – Argentina Interconnection

The Garabi interconnection is one of the few privately owned regional interconnector transmission projects in the world. It was planned during the 1990s, however, the abrogation of Argentina's electricity and gas export commitments in 2004 has meant that the usage of the Garabi interconnector has been very different from what had earlier been planned on account of the power shortages in Brazil.

I. Institutional Setup

The Governments of Argentina and Brazil signed an agreement in 1997 to facilitate CBET between the two countries. Brazil called for bids for the delivery of 1,000 MW of firm capacity from Argentina. The Spanish-based international electricity company, Endesa, won the contract and in early 1998, it registered a special-purpose company called Companhia de Interconexão Energética (CIEN) in Brazil. In May 1998, the Brazilian Ministry of Mines and Energy and the Argentine Government signed a 20-year contract with CIEN, for Brazil to import 1,000 MW from the wholesale energy market in Argentina. At the national level, the systems and market operators manage the technical environment in which Garabi operates. These institutions are:

- **Argentina - Compañía Administradora del Mercado Mayorista Eléctrico (CAMMESA).** Its main functions are real-time operation of the electricity system, which involves operation and dispatch of generation, price calculation in the spot market, and the administration of the commercial transactions in the electricity market. It acts as an agent for the various players in the wholesale electricity market and organises and leads the use of transport facilities for spot transactions. The wholesale market allows exchanges with neighbouring countries through power contracts between private companies that meet the requirements of the regulatory framework.
- **Brazil - Operador Nacional do Sistema Elétrico (ONS).** It is responsible for coordination of operations and control of electric power generation and transmission facilities in the Brazilian interconnected power system. ONS is governed and administered by electric power companies in generation, transmission, and distribution as well as retail utilities, electricity importers and exporters, certain high-energy-consumption consumers, and the Ministry of Mines and Energy.

An operations agreement between the two agencies exists, detailing procedures and responsibilities regarding trade, voltage control and repairs, and upkeep of the interconnection. CAMMESA and ONS are only incidentally involved in the Garabi project and unlike most other regional power integration schemes; there is no supranational regulatory or coordination body for the Argentina-Brazil electricity trade initiative. The coordination is done through CIEN and there is no standing committee with public sector membership to serve as a forum or to assist with coordination.

Both Argentina and Brazil have electricity sector regulators. In Argentina, El Ente Nacional Regulador de la Electricidad (ENRE), established in 1992, is responsible for regulatory functions and tariff matters relating to concessions granted by the national government. In Brazil, the regulatory agency is the Agência Nacional de Energia Elétrica (ANEEL), which is autonomous but has links with the Ministry of Mines and Energy. ANEEL was created as a result of legislation passed in 1996 as the national electric system regulator, inspector, mediator, and licensing authority.

2. Objective

The Garabi project was designed around a contract for firm capacity imports of 1,000 MW by Brazil from Argentina, without committed amounts of related energy. The infrastructure also makes possible non-firm energy trade during the winter months when demand for gas in Argentina is high and water availability is high in Brazil. In practice, following political and economic crisis in Argentina and suspension of electricity exports, power flows have been from Brazil to Argentina (and also to Uruguay), but the system is fulfilling purpose of providing energy security.

The transmission assets from the project are two sets of parallel 500 kV AC transmission lines running a length of 490 km (355 km in Brazil). In addition there are two 1,100 MW high voltage direct current (HVDC) back-to-back capacitor-commutated converter stations at Garabi in Brazil, close to the Argentine border.

3. Financial

The Garabi project, being privately owned and operated, has not involved outside agencies to a significant extent, other than at the financing stage. The Inter-American Development Bank (IDB) played an important role in the financing, while MIGA offered partial risk guarantees.

At the time it was created in 1998, CIEN was an affiliate of Endesa. CIEN's capital is currently distributed between Endesa itself and an Endesa subsidiary in Chile, which is partly owned by Compania Electrica Conosur, the largest power generation and transmission company in Chile. The two Garabi transmission lines are registered as the principal assets of the two subsidiary companies: Compañía de Transmisión del MERCOSUR (CTM) was responsible for Interconnection I and Transportadora de Energia (TESA) for Interconnection II. Both companies are 100 per cent owned by CIEN.

The total capital cost of the Garabi project was around USD 700 million. The IDB was involved with organising an equity facility of around USD150 million, together with two loans of USD74 million and USD174 million. MIGA issued guarantees for USD28 million to Endesa and USD37 million to Banco Santander Central Hispano for their investments and loans in CIEN to expand its power distribution capabilities in Brazil. The guarantees covered the investors against the risks of transfer restriction and expropriation.

The original contract had a fixed monthly charge for the 1,000 MW of firm capacity, together with a tariff for energy that was payable only when the electricity was delivered. In general, contract prices for energy trade and wheeling via the Garabi system are negotiated by the parties concerned.

5.1.5 West African Power Pool (WAPP)

The West African Power Pool (WAPP) was established in October 2000, and comprises 14 of the 15 member countries (fig-13) of the regional economic community – Economic Community for West African States (ECOWAS). WAPP member countries include Benin, Côte d'Ivoire, Burkina Faso, Ghana, Gambia, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo.

Figure 13 West African Power Pool (WAPP)



WAPP, which currently has 26 member utility companies, consists of public and private generation, transmission and distribution companies involved in the operation of electricity in West Africa.

1. Objective

WAPP has been established with the objective of integrating the national power systems into a unified regional electricity market with the ultimate goal of providing in the medium and long term, regular and reliable energy at competitive cost to the citizenry of the ECOWAS region.

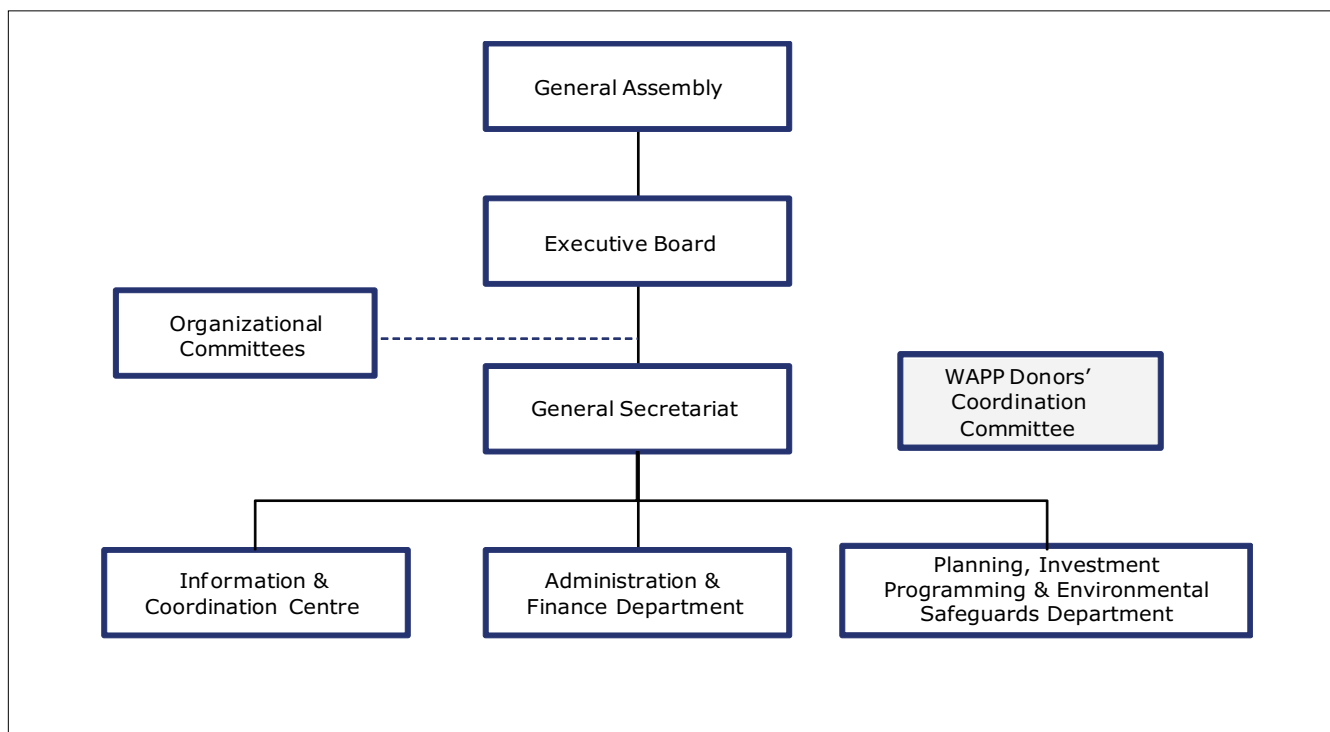
2. Institutional Setup

WAPP is a voluntary organisation with membership open to any entity, public or private, which meets the following criteria.

- Own/operate facilities of 20 MW or larger and/or distribute and retail electricity
- Own/operate major transmission facilities in the region (Transmission Owning/Operating Members)
- Have an interest in the electricity sector in West Africa but do not fit in the definition of Transmission Using Members or the Transmission Owning/Operating Members.

The regional set up in WAPP comprises (fig-14) of the General Assembly, the highest decision making body. It is responsible for the co-ordination of appropriate measures towards the implementation of the principles of the Articles of Agreement, facilitate the implementation of programmes and projects, review and approve new membership applications, elect the members of the Executive Board, examine and adopt the financial regulations of the structures of governance of WAPP, etc. It works through an Executive Board, which is responsible for defining policies and monitoring operations as well as planning future development. It comprises of 11 members including the Secretary General. The Organisational

Figure 14 WAPP Organisational Structure



Committees of WAPP advise the Executive Board on all matters regarding collective policy formulation functions for developing, maintaining and updating common “rules of practice” on technical, planning, operational and environmental aspects of WAPP. The committees comprise of technical experts selected from WAPP members.

The WAPP Secretariat is the administrative organ that supports the Executive Board in accomplishing its duties as well as day to day management of WAPP. The Secretariat is supported by various departments such as:

- Information and Coordination Centre
- Planning, Investment Programing and Environmental Safeguards
- Administration and Finance Department

The ECOWAS Regional Electricity Regulatory Authority (ERERA) regulates the regional cross-border trade of electricity in West Africa. ERERA has been established with the following objectives:

- Contribute to the implementation of conditions favourable for public and private investments
- Ensure regulation of regional electricity exchanges
- Assist the ECOWAS Commission in the definition of regional sector policies and in the harmonisation of policies and national power structures
- Support the establishing of the regional market and its opening up to competition.

ERERA is working to establish a harmonised and functional legal and institutional framework at the state and regional levels.

3. Investment and Financing Options

The WAPP investment programme is derived from the ECOWAS Master Plan for the Generation and Transmission of Electrical Energy developed in 1999, with subsequent revisions in 2005, 2012 and 2015. The business plan for WAPP set out a strategic guideline for the medium to long-term development of regional energy infrastructure. The key objectives of the business plan are:

- Ensure effective implementation of priority projects
- Establish the regional electricity market
- Reinforce the capacity of WAPP.

The Master Plan defines priority projects in the region for development with focus on developing the hydroelectric resources in Western Africa and to build a reliable transmission network to share the resources in the whole region. For this 14 major priority interconnections were identified. The projects are identified as national projects for production, regional projects for production, and regional projects for interconnection.

The priority projects under the infrastructure development are being financed through multi-lateral financing from IFIs. Some examples are:

- 330 kV West (Nigeria) – Sakete (Benin) Interconnection Project – 70 km
 - Construction completed and project operational since 2007
 - Was funded by AfDB, BOAD, EBID as well as Governments of Nigeria and Togo/Benin
 - WAPP ICC monitoring of line indicates that interconnection could be saturated by 2018/2019

- 225 kV Bobo – Ouaga Transmission Line Project IN BURKINA – 339 km:
 - Construction completed and project operational since 2009
 - Fully funded by WB, AFD, EIB, Danida, Danish Mixed Credit and Government of Burkina
- 330 kV Aboadze - Volta Transmission Line Project IN GHANA – 219 km:
 - Construction completed and project operational since 2010
 - Fully funded by WB, EIB, Kuwaiti Fund and Government of Ghana
- 225 kV Cote d'Ivoire - Mali Interconnection Project – 234 km:
 - Construction completed and project operational since 2012
 - Funded by EBID, BOAD and Governments of India, Mali and Cote d'Ivoire
 - Sikasso – Bamako segment being implemented by Government of Mali
- 60 MW Felou Hydropower Project under OMVS:
 - Construction completed and project operational since 2013
 - Funded fully by WB and EIB together with Governments of Senegal, Mali and Mauritania
- 240 MW Kaleta Hydropower Project in Guinea:
 - Construction completed and project operational since 2015
 - Implemented by the Government of Guinea with support from China's Exim Bank
- Complete Integration Of Power Systems Of Mainland ECOWAS Member States

The primary goal of WAPP Business Plan (2016 – 2019) is to further reinforce the WAPP Interconnected System and achieve complete integration of the 14 mainland ECOWAS Member States by 2019.

4. Case Study – TRANSCO CLSG Interconnection

Within WAPP, the Governments of Ivory Coast, Liberia, Sierra Leone and Guinea have decided to cooperate in order to develop a regional high voltage transmission line called “Interconnection Line” in compliance with the ECOWAS Energy Protocol. The objective of this project is to build an interconnection line between Ivory Coast, Liberia, Sierra Leone and Guinea through several cities. This line will include 2500 towers (1264 km of high voltage transmission line) and 12 sub-stations.

The investment and operation is proposed to be developed on a long term basis by Special Purpose Companies (SPC) following commercial laws and benefiting from a set of guarantees (not only financial guarantees). A treaty has been negotiated and signed between the four states (December 2011 – March 2012). This treaty creates, inter alia, a special purpose company (“Transco CLSG”) following commercial laws whose former stakeholders are the four national utilities. The treaty establishes the main principles of an International Project Agreement to be agreed to by the four states and the SPC. The International Project Agreement (which contains various set of clauses similar to a public service concession) includes clauses permitting the company to restore its financial viability and economic equilibrium if substantially affected and not in default. The IPA has been signed on July 5th, 2012. Taking into account the particulars of the project, which is similar to an institutional PPP, the term of the agreement is for 99 years. The project has been financed by a consortium of development banks: African Development Bank, World Bank, European Investment Bank and Kreditanstalt für Wiederaufbau (KfW).

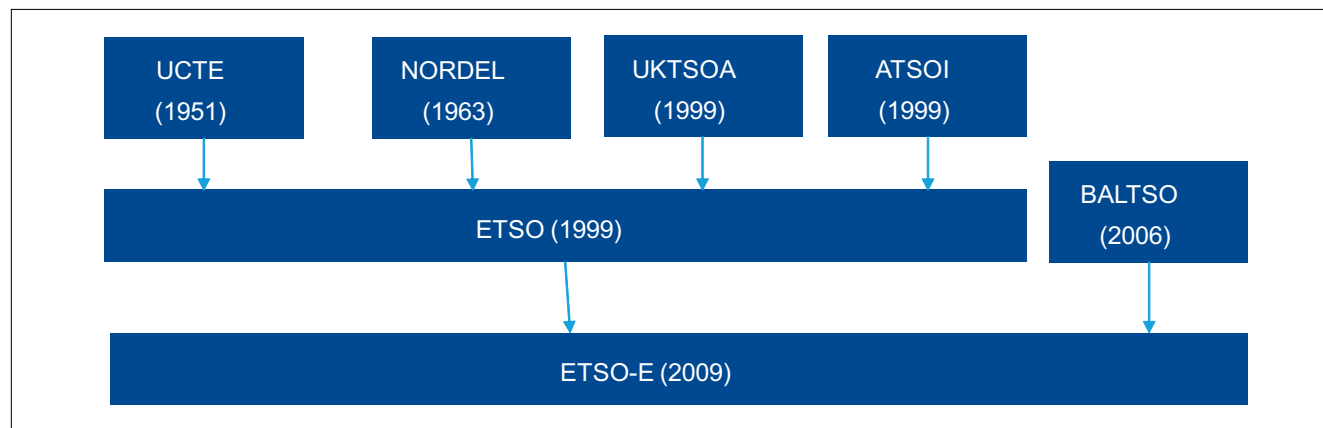
The poor financial health of the power sector in the four countries as a whole threatens the sustainability of any project or operation. A number of measures were considered to ring-fence the RTC (company

which owns and maintain the transmission line) from these risks. These include: (i) a letter of credit that the RTC holds with a commercial bank to ensure that payments are being made in a timely manner and that the RTC does not experience cash-flow problems; (ii) the setting up of a dedicated reserve account for the RTC; (iii) a provision for all shareholders to provide for any shortfall the RTC would face if one of its users did not pay.

5.1.6 European Network of Transmission System Operators for Electricity (ENTSO-E)

The European Network of Transmission System Operators for Electricity (ENTSO-E) was created as a result of the Third Internal Energy Market Package of 2009, which required Transmission Service Operators (TSOs) to found cooperation structures to ensure system stability in the European grid as well as provide the technical basis for market integration. When it was formed in 1951 (figure-15), UCTE represented national integrated electricity utilities, including generation. With the unbundling and privatisation of generation in many of the countries, the focus was on the technical issues of operating a large, synchronous system spanning national boundaries. In 1999, the responsibility for market-related interconnection issues was passed to the Association of the European Transmission System Operators (ETSO). In 2009, UCTE, ETSO and other similar organisations outside of the synchronous area were subsumed into a new institution called the Association of the European Network of Transmission System Operators for Electricity (ENTSO-E).

Figure 15 Evolution of European Network of Transmission System Operators for Electricity (ENTSO-E)



I. Institutional Setup

The organisation hosts five different types of regional groupings relating to ENTSO-E's different functions: system operations, systems development and market solutions.

Since 2010, the Agency for the Cooperation of Energy Regulators (ACER) identified four cross-regional roadmaps on day-ahead price coupling, cross-border intraday trade, allocation of long-term transmission rights and methods for short-term capacity allocation in a meshed grid. These projects are implemented within a three-tiered governance structure involving

- Regional Coordination Committees made up of the regions' national regulators;
- Implementation Groups, which include market participants such as TSOs, power exchanges and interconnector operators, and;
- Stakeholder Groups with other key market participants in each region, such as traders, suppliers, customers and electricity generators (ACER Website 2015).

The national institutions across countries retain default individual responsibility for electricity policy, including security, wherever treaties or legislation have not assigned this to the EU level. TFEU Article 194 also provides that EU legislation ‘shall not affect a member state’s right to determine the conditions for exploiting its energy resources, its choice between different energy sources and the general structure of its energy supply’.

The Third Package requires each member state to designate a single national regulatory authority NRA. Member states may also retain other regulatory authorities for regions within the country, but there must be a senior representative at the national level. The NRA must be able to carry out its regulatory activities independently from government and from any other public or private entity. NRAs work together under CEER, a not-for-profit association established in 2000 to facilitate the creation of the internal energy market. CEER focuses on informal activities to complement the formal mandate of ACER.

The Third Package both increased the independence of unbundled TSOs and required their increased cooperation at the European level, mainly through ENTSO-E. System reliability remains the responsibility of each network operator. In the EU, TSO control zones coincide with national borders in the majority of cases (the exception being Germany). Consequently, TSOs are regulated to maximise available transmission capacity, in particular with regard to interconnectors.

In relation to energy security, the Security of Electricity Supply Directive establishes measures aimed at safeguarding the security of electricity supply, to ensure the proper functioning of the internal market, an adequate level of interconnection between member states, an adequate level of generation capacity, and balance between supply and demand.

The ENTSO-E Systems Operations Committee provides proposals for network codes and promotes operational coherence among regions. Regional groups based on synchronous areas ensure compatibility between system operations on the one side and market solutions and system development on the other.

2. Objectives

The existing institutions work towards the overarching objective of completing the internal electricity market – either by aiming for physical links through interconnections, safe operations of the interconnected grid or by focusing on market coupling. The incentive for cooperating is therefore primarily an economic one.

The Third Internal Energy Market package (2009) came into effect in 2011 and covers five main areas:

- Unbundling energy suppliers from network operators.
- Cross-border cooperation between transmission system operators and the creation of European Networks for Transmission System Operators (for electricity, ENTSO-E and for gas, ENTSO-G).
- Strengthening the independence of national regulators.
- Establishing the Agency for the Cooperation of Energy Regulators (ACER).
- Increased transparency in retail markets to benefit consumers.

3. Ownership

The inter connections are under public ownership with the national TSO being responsible for planning and construction of the interconnections.

The EU’s primary tool for meeting the interconnection target is the Trans-European Networks (TENs) strategy providing for the selection of Projects of Common Interest (PCIs). These are selected by the

European Commission on the basis of ENTSO-E's Ten Year Network Development Plan. A first list of PCIs published in 2013, based on TYNDP 2012, included 45 interconnection projects out of a total 134 electricity infrastructure projects.

5.2 Key learnings from international experience

5.2.1 Institutional Framework

The regional power pools are often initiated through some political initiative, giving them initial momentum. To sustain the schemes, it is necessary to establish regional institutions. These typically are of two main forms:

- Regional bodies are groups responsible for strengthening the power exchanges through working with governments, regulators, and utilities from member countries on an on-going basis. The regional bodies could be power pools and their secretariats, regional regulators (or regional associations of national regulators), and regional transmission/system/market operators.
- SPVs are the corporate structure established to execute and operate a specific regional project such as a large export-oriented hydropower plant.

The examples of schemes with different kinds of regional bodies includes SAPP, which falls under the SADC, WAPP formed by ECOWAS, GMS regional market forms one part of the overall GMS integration initiative, etc. SAPP was initially formed as an association of 12 member countries represented by their respective electric power utilities. It was organised through SADC, and it was created based on agreements rather than on law. It started as a cooperative association of vertically integrated utilities seeking to equitably share in the benefits of power-pooling arrangements.

SPVs have been developed for the implementation of individual projects and have a number of advantages, including a transparent and workable framework for the ownership of shared assets and the employment of well-qualified personnel. The alternative of national ownership of components of a regional system is best avoided because it makes political interference much more likely, including national demands for priority use of the assets during shortages. The examples include Argentina-Brazil, Manantali in WAPP, and Nam Theun 2 Power Company in GMS.

The type of regional arrangement is an important determinant of the institutions that have emerged to promote investments.

- GMS is yet to establish a full-time Secretariat for regional power. Instead, various working groups bring together representatives of national utilities and regulatory agencies and act as a secretariat rotating between members. This is reflective of both the wider GMS initiative and other regional institutions, such as those under ASEAN.
- The institutions promoting power sector integration are crucial, but, as the above discussion illustrates, it is difficult to derive general rules about institutional design where the history and political framework are different and changing over time. Ideally, institutions need to evolve to encompass the wider cooperation between countries and reflect the established approach to such cooperation. Creating new institutions with no basis in existing cooperative arrangements are unlikely to succeed, as is trying to force a level of permanence and control exceeding that in other existing arrangements.

5.2.2 Regional Trade Agreements

Free Trade Agreements (FTAs) are particularly useful when investors are dealing with multiple levels of governments such as central, province, municipal etc. FTAs are binding on all levels of government. As FTAs are governed by international law, later changes in domestic law are no excuse.

5.2.3 Project Risk Mitigation

■ Political risk insurance

These insurances are generally expensive in nature and most of the time coverage is limited to the new project. They have typically standard coverage for the following:

- Expropriation/confiscation of assets
- Breach of contract by the host government
- Political violence, such as revolution, civil unrest, terrorism or war
- Inconvertibility of foreign currency or the inability to repatriate funds
- The following types of agencies can be involved in insuring political risk:
 - Government agencies (EDC, OPIC, ECGB, NEXI etc.)
 - Multilateral insurers (World Bank/MIGA, Islamic Development Bank/ICIEC)
 - Private insurers

Political risk insurance protects investors against expropriation risk. Country or power pool can guarantee against nationalisation and expropriation. **WAPP power pool guarantees investors against nationalisation or expropriation.**

■ Contract enforcement

In a **power pool, countries can monitor each other and make sure that none of them breaches the contract.** GMS has a similar Inter-governmental Agreement as a precondition, which substantially reduces the chances of contract breach by any particular host government.

ASEAN and SAPP power pools provide mutual monitoring which helps in ensuring contract enforcement in member countries.

■ Arbitration and dispute resolution

Across all the Pools/Regions reviewed (SAPP, WAPP, GMS, GCC and Georgia – Turkey), the treaties and agreements contain dispute resolution and settlement procedures. The most preferred method of dispute settlement resolution is an amicable settlement between the parties.

The last resort of settlement is through international arbitration as agreed in the agreements/treaties. SAPP provides the best example of facilitating a regional body, which helps in regional interaction to build trust among members and undermines the need for arbitration and dispute resolution.

■ Land acquisition risk

ASEAN and SAPP have best practices for environmental related issues, such as cooperation on environmental and safety standards; regional cooperation on renewable energy sources, energy efficiency and conservation standards.

■ Off-taker risk

GMS has evolved an arrangement for reducing off-take risk as is evident from the Thailand-Cambodia interconnection. The **PPA** established **contractual arrangements confirming volumes and prices** to be paid by EDC for delivery received from EGAT and CPTL Thailand-Cambodia interconnection project. The **PPA** between THPC, Laos and Thailand ensured more than 95 per cent output sale to Thailand on **take-or-pay** basis for 25 years with an option to renegotiate the tariff after 10 years.

The **contract** for loan structure included strict controls over the project's bank accounts to do away with payment default risk. Bank accounts specifically dedicated to the CPTL project needed to be opened and maintained outside the country i.e. a country other than Cambodia and Thailand. As per **contract** all amounts payable to the project are required to be paid into the offshore account and may only be withdrawn according to the **payment priorities and amount limits** specified in the loan document.

■ Financing Risk

The contractual framework in GMS addresses the issue of high interest rate by mitigating various risks related to payment default and currency valuation. For example, in the Laos – Thailand interconnection (Theun- Hinhoun Hydro), the commercial banks were reluctant to provide funding for a JV in Lao PDR. The provisions in the PPA were used to minimise risk, thus securing commercial lending at a reasonable interest rate. THPC had to set up an offshore escrow account for all payments by EGAT. Initial risk of the project was borne by two foreign shareholders as committed in the shareholder agreement that they would provide corporate guarantee, with each assuming half responsibility, for remaining financing requirements if, all other efforts fail.

The following Table-15 provides a comparison of ownership structure, financing options and type of trade agreements for various regional associations

Table 15 Comparative Analysis of Ownership Structure, Financing Options and Type of Trade Agreements for Various Regional Associations

Regional Association/Pool	Ownership	Financing	Trade Agreements
SAPP	Interconnectors are publicly owned, some via SPVs; Private investment for Zambia-DRC link	IFIs, and development banks, national governments	Day Ahead Market
WAPP	Interconnectors are owned by national governments through SPVs	Multilateral development banks (WB, KFW) securing grant or credit financing for the projects, creation of SPVs for members to take equity stakes	
GMS	Interconnections owned by national transmission companies	National utilities, IFIs, international developers, commercial banks	Bilateral
GCC	Public ownership of transmission assets, including interconnectors	National contributors (equity and debt) in proportion to net present value of estimated reserve capacity savings	Spinning reserve
Argentina – Brazil	Garabi interconnectors and frequency converter stations are privately owned	IFIs, equity, commercial and development bank loans	Bilateral
ENTSO-E	Public ownership in various forms still dominant	Mixed financing	EU single market

5.3 South Asia Experience

The key learnings from the South Asian CBET experience are provided in the Table-16 below.

Table 16 The Key Experiential Learnings in Mitigation of Risks in the South Asian CBET

Key Risks	Learnings
Political risk	
Sovereign risk	Political risk events have a long-term adverse impact on the country as investors refrain from investing in countries with a history of expropriation. An inter-governmental agreement should be in place to insure investors against any possible expropriation in the region. Providing guarantees and political risk insurance to investors can help SACs to attract more investment by mitigating their political risk. Mutual monitoring in a common regional electricity forum would also act as a deterrent mechanism for countries against expropriation.
Expropriation risk	Agencies such as MIGA and IDA are quite active in the region and provide cover against various political risks including expropriation. Example: • The Ministry of Finance of Bangladesh provided sovereign guarantee covering debt obligations of Ashuganj Power Station Company Ltd, Bangladesh (2013) under its loan agreement with HSBC. MIGA provided HSBC Bank Plc non-honouring of sovereign financial obligations coverage of \$251 million for a period of up to 13.5 years. • IDA provided partial risk guarantee for the 360 MW gas-fired Haripur power project in Bangladesh. The project cost was USD 180 million and it was financed through debt equity ratio of 54:46. IDA has an indemnity agreement with Govt. of Bangladesh, under which Govt. of Bangladesh has counter-guaranteed IDA for any payment made under the Guarantee Agreement. IDA partial risk guarantee backstopped the following categories of risk at a charge of 75 bp per annum on outstanding principal amount of guaranteed loan: • Breach of contract, frustration of arbitration • Changes in laws in Bangladesh • Currency convertibility • Political force majeure in Bangladesh including nationalisation and expropriation • Natural force majeure
Breach of contract by host government	
Currency inconvertibility/transfer restrictions risk	• For Nepal, MIGA coverage of \$32.8 million insures equity investments in the 60 MW Himal power plant against currency transfer, expropriation, and war risks (1996) • MIGA issued a guarantee of \$148.5 million to cover an equity investment in Star Hydro Power Limited Pakistan (2012) for a period of up to 20 years against the risk of breach of contract. • MIGA issued guarantees of \$82.7 million covering investments for a period of up to 15 years against the risk of breach of contract for Gulpur Hydro Power project in Pakistan (2015). • In Nepal, In the year 2002 MIGA provided a guarantee of \$11 million to BKK AS of Norway for acquisition of Himal power Nepal with coverage period of 15 years, and is against the risks of transfer restriction, expropriation and war and civil disturbance.

Key Risks	Learnings
Regulatory and policy risk	
Contract enforcement	Regulatory risks can be overcome by embedding the appropriate contract at the beginning of the project. A regulatory regime should be insured through the following assurance in one or more legal instrument or contract: • Multi-year tariff-setting systems (for 1st period) • Cost-pass through norms • Foreign exchange adjustment norms • Triggering events • Dispute resolution etc. • Arbitration clause in regulatory contracts SACs should ensure contract enforcement by making their legal institutions strong; this will include capacity building of the institution and no political interventions in the legal process.
Arbitration and dispute resolution	SACs should engage with each other in a regional forum and use participatory processes to solve disputes through amicable processes There should be provision of 3rd party international jurisdiction in the investment contract if a country and investor could not reach an amicable solution in a case. There should be an independent regulator. No government entity other than a court or pre-designated arbitrator should be able to overrule the regulator's decision. • An inter-governmental body (e.g. SAARC Arbitration Council) can play a large role in sorting out investor-state disputes. • Legal remedy can be sought by investors against the government by using bilateral investment treaties (BITs), FTAs and membership of international organisations such as WTO.
Project development and off-take risk	
Land acquisition risk	• SACs may give non-discriminatory land rights to regional investors, which may be further extended to investors outside the region depending on the experience gained. • SACs should try to reach the pre-identified site and get the concerned licenses for land and environment in order to facilitate the project development process for developer and investors. • The SA government may also give developers the option to acquire land for them on some payment basis, as it would take care of a lot of legal hurdles for developers.
Environment and R&R clearance risk	
Off-take risk	• SACs can reduce the off-take risk by collaborating at the regional level for determining planned capacity and evacuation for the regional (CBET) project, which are mutually agreeable. This would also include determining the duration and pricing of the trade to ensure off-taking of power generated for identified CBET power projects. • In order to promote investment, countries may explore the suitability of signing USD denominated contracts to insure investors against currency devaluation risk. • SACs may also opt for opening escrow accounts in a third country apart from the countries participating in the trade for payment of all the power sold and have a covenant to pay the debt provider first. • Similarly, SACs may have contracts whereby 50% payment would be made in the local currency and 50% would be made in USD to minimise the impact of currency fluctuation on investors' returns.

Key Risks	Learnings
Commercial risk	
Currency risk	- For a bi-direction power flow arrangement in CBET there should be the option of settlement-in-kind on annual basis energy accounting. - Other hedging instruments may also be explored along with money market tools such as forwards, options, Forex and currency swaps. - Other innovative options can also be explored such as Price Stabilisation Fund. A similar fund in Nepal aimed at transferring the currency risk to consumers beyond a threshold. The Government of Nepal has seeded a Price Stabilisation Fund with NRs 500m (around US\$5m). If petroleum product prices rise by more than 2%, the NOC will draw on the fund to moderate the increases passed on to consumers; if prices decrease by more than 2%, the NOC will make deposits into the fund to build it up against future shocks.
Interest rate risk	- Hedging instruments may be explored along with market instruments such as interest rate swaps - Interest rate can be managed for SA power projects by opting for innovative financing options such as Masala Bonds, Green Bonds etc. Indian firms/ banks issued Green Bonds worth \$1.1 billion in 2015. Considering the initial year of such offerings this is a very promising investment source to fund green projects. Example: - In March 2015, Exim Bank of India issued a 5-year \$500 million Green Bonds (dollar denominated) to fund eligible green projects in Bangladesh and Sri Lanka. This issue was oversubscribed nearly 3.2 times. - In January 2016, IREDA issued a tax-free \$150 million Green Bond which was oversubscribed by 5 times on opening day. - In August 2016, NTPC issued USD 299 million worth of Green Bonds.
Tax policy	In year 2014, SAARC Inter-Governmental Framework Agreement (IGFA) for Energy Cooperation stated that 8 member countries may work towards zero tax regime for CBET. Article 4 (Duties and Taxes) of this agreement “states that Member States may work towards exempting from export/import duty/levies/ fees etc. for cross-border trade and exchange of electricity between Buying and Selling Entities.”

6 Regional Investment Framework

The key ingredients of the regional investment framework for the South Asian region are discussed below.

6.1.1 Developing a Regional Coordination Framework

Governing policies and frameworks that support the identification, development and operation of an adequate mix of supply- and demand-side technologies are crucial to ensure the efficiency and reliability of cross-border or regional power trading. The evolution of a regional investment framework would need to be supported by an institutionalised framework at the regional level. The experiences from other regional pools show that a multi-tier structure is essential for addressing the diverse requirements. For example, the selection and prioritisation of regional CBET projects needs to be undertaken in an objective and transparent manner. Both WAPP and GMS have institutionalised the structure with the involvement of multi-lateral donors and financing institutions. A similar structure can also be proposed for the South Asian region, which can also leverage the other emerging institutions in the region.

The regional framework needs to identify and propose specific policy, fiscal and market instruments to harmonise the investment frameworks across the region.

6.1.2 Promote Policy and Regulatory Instruments for Attracting Private Investments

The investment framework needs to have financial tools, including insurance, available for enterprises to mitigate financial and other risks linked to their activities. The government needs to take steps to strengthen competition in the financial sector, including facilitating the participation of foreign institutions, and raising the efficiency of financial intermediation.

Establishing strong, stable, and rules-based governance frameworks to ensure sufficient investment and efficient operations is crucial for CBET projects. The respective governments in the region need to ensure that the laws and regulations dealing with long-term investments and investors and their implementation and enforcement are clear, transparent, widely accessible and do not impose unnecessary burdens.

In addition to the national regulators, establishing a regional regulatory body is equally important in the long-term. This organisation should have a clear mandate and have support from all member countries, and be granted the authority to work with national regulators to standardise reliability requirements, technical codes, commercial framework and focus on cross-border capacity planning.

6.1.3 Managing the Project Development Risks

CBET project development is characterised by several risks such as:

- Political and country risk – this could be on account of perceived political instability, high transaction costs, lack of transparency and predictability in award, change of law, public governance framework
- Policy and regulatory risk – Contract enforcement, dispute settlement, administrative process, legal stability and predictability
- Project implementation risk – Site identification and resource assessment, land acquisition, environment, R&R, skilled manpower
- Off-taker and financing risk – Currency risk (instability, exchange rate, convertibility), Predictable tax policies, corporate governance, liquidity issues, debt financing

A key risk perceived by foreign investors is the contracts enforcement mechanism at reasonable low cost and with minimum delay. The system of contract enforcement needs to be widely accessible to all investors, domestic and foreign and should be comparable with those of other jurisdictions in the region or countries.

The investors also evaluate the steps taken by country governments towards the progressive establishment of timely, secure and effective methods of ownership, registration for land; mechanism for rehabilitation and legal recourse available for securing the rights of investors.

The risk mitigation measures, which would be part of the regional investment framework, are provided below (figure 16).

Figure 16 Project Development Risk Matrix

Issues	Political and country	Policy and Regulatory	Project implementation	Off-taker
	- Political instability - High transaction cost - Transparency & predictability - Non-discrimination - Change of law - Public governance	- Contract enforcement - Dispute settlement - Administrative process - Legal stability and predictability	- Site identification and resource assessment - Land acquisition, environment, R&R - Skilled manpower	- Currency risk (instability, cexchange rate, convertibility) - Predictable tax policies - Corporate governance - Liquidity issues, debt financing
Mitigation	Political and country	Policy and Regulatory	Project implementation	Off-taker
	- Political insurances - International investment agreements (BIT, FTA) - BOO, and BOOT business models under PPP - Guarantee against expropriation	- Standardize contract documents - Dispute resolution mechanisms - Role of regional regulators/inter-governmental bodies - Capacity building of public institutions	- Standard technology specific project development guidelines - Single window clearance - Regional skill development center	- Currency hedging (Currency swaps, options, forward contract) - USD denominated PPA - Stable tax regime - Corporate governance

6.1.4 Harmonising the Capital Markets in the Region

Harmonising capital markets is a crucial step toward greater integration of capital markets. An integrated, regional capital market characterised by free movement of capital or capital market services across countries allows an investor in one country to invest in another country in the region, an issuer from one country can raise capital in another country in the region, and suppliers of investment services can operate throughout the region. Integrated capital markets encourage competition, enhance innovation, attract wider participants, and provide deeper liquidity. All of these benefits reduce the overall cost of capital and investment, which is critical for capital-intensive projects like hydropower projects, and interconnection projects. Currently, there are several barriers in South Asia, which create asymmetry in the flow of capital across the region. These include:

- Lack of information on and interest in South Asian markets on experience sharing in market development, introduction of innovative products and services
- Barriers to the movement of capital within the region caused by exchange control restrictions
- Absence of any explicit policy objective of harmonisation and establishing basic common standards
- Perceived differences in the regulatory and enforcement capacity among the markets in the region

- The presence of small capital markets that may have difficulty in sustaining the expenditure on the systems and regulatory resources expected of a participant in a regional capital market.

In order to develop an investment framework, which could facilitate CBET trade in the region, the harmonisation of capital markets and strengthening them is of critical importance. The 17th SAARC Summit (Addu, Maldives, 10-11 November 2011) directed the SAARC Finance Ministers to chart a proposal that would allow for greater flow of financial capital and intra-regional long-term investment. The Seventh Meeting of the IGEG (SAARC Secretariat, 20-21 May 2014) reviewed the progress on Public Debt Management; Development of Capital Market in South Asia; and SAARC ADB Studies on Second Phase of Study on Regional Economic Integration. The initiatives currently being undertaken under the SAARC framework needs to be expedited.

The regional investment framework ought to address the following key issues for deepening the respective country's capital market:

- Broaden the respective roles of stock markets and the corporate bond market for investments in CBET projects.
- Make provisions for local currency debt for long tenures to finance hydropower projects.
- A regional credit rating framework for off-takers, lenders.
- Develop a diversified investor base for capital market securities.
- Refinancing options for debt.

6.1.5 Supporting Development of Clean Energy Resources like Hydropower

Many forms of renewable power offer intermittent electricity generation, which can create challenges for system reliability and require back-up capacity that adds to the total system cost. Deeper levels of regional integration can help address these issues through shared reserves and a larger, more diverse generating portfolio, which utilities can tap to meet their demand. Interconnections and resulting power trade can also facilitate renewable energy expansion. Trade can also bring economies-of-scale needed for large hydropower plants.

In a number of cases, enhanced CBET has been a key driver for hydropower plant development. Development and operation of NT2 is the result of successful interconnection and sales of power internationally. These relatively large hydropower schemes would have been too large to develop for their home country electricity markets alone. Both the host country of the plant and the importing country benefit from this arrangement. The key challenges for the development of clean energy sources include high capital cost combined with high interest rates, lack of regulatory support, insufficient local expertise, etc.

The experience gained from international regional systems shows that innovative financing models, attracting private sector through PPP frameworks, policy and regulatory initiatives at the regional and country level play an important role in the development of hydropower resources in the region. The South Asian region is endowed with high hydropower potential in the Himalayan region, which can be harnessed for meeting the electricity requirements of the region.

6.1.6 Making Available Innovative and Low Cost Financing Options

Multilateral and bilateral donor agencies have played significant roles in regional power integration in the developing world. The most prominent aspect has been in helping to finance regional projects, but donor agencies have also been involved in shaping or even creating regional institutions. The regional pools across the globe have tapped various sources of funds:

- SAPP - IFIs, development banks and national governments
- WAPP - Multilateral development banks (WB, KFW) securing grant or credit financing for the projects, creation of SPVs for members to take equity stakes
- GMS - Concessional debt financing and technical assistance (ADB, WB), Several CBET feasibility studies funded by ADB and WB
- GCC - National contributors (equity and debt) in proportion to net present value of estimated reserve capacity savings

The regional investment framework would have to rely on developing innovative financing instruments for capital-intensive hydropower and transmission projects in the region. Policy initiatives like the one announced by the GoI for the ailing hydropower sector would be required to support the development of projects. The package of around USD 2.5 billion includes a four per cent interest subvention to projects with a total capacity of 11,639 MW and the creation of a Hydropower Development Fund. The fund would be financed by either coal cess, or from the National Clean Energy Fund or the pool for the Development of North Eastern Region (DONER).

The key initiatives that need to be implemented include:

- Devise strategic programmes to encourage private sector investments.
- Create a special fund for financing cross border projects with low interest rates.
- Develop specific debt instruments for hydropower projects leveraging available Green Energy Bonds, Green Energy Funds to make them competitive in the market.
- Policy regulatory initiatives for reducing the high upfront tariffs for hydropower projects

6.1.7 International and Regional Agreements

The country government's commitment to regional trade plays an important role in the institutionalisation of the investment framework. These could be done through

- Treaties like in SAPP
- Energy protocols as in WAPP
- MOUs - SAPP, WAPP, GMS

Similarly the regional agreements or MOUs on operating principles and guidelines of trade can be done through Inter-utility MOUs (SAPP, GMS), Articles of Agreement (WAPP), Inter-Governmental Agreement on Trade (GMS, South America), and Policy Statement on Regional Trade (GMS).

The international and regional treaties and agreements also play an important role in conflict management arising out of disputes on contractual arrangements between governments, the government and private sector or two private parties. For example, cooperation on regulatory and contractual aspects has been done through a common set of regulatory guidelines (SAPP). In SAPP, these guidelines were developed by the Regional Electricity Regulators Association of Southern Africa (RERA), and adopted by SADC's Energy Ministers in 2010. Similarly in GMS, the Electric Power Forum and Regional Power Trading Coordination Committee (RPTCC) perform the tasks of regional cooperation on regulatory and contractual aspects.

The regional investment framework in South Asia needs to be supported by regional agreements, institutionalised regulatory and operational arrangements to support the development of CBET projects in the region.

7 Regional Investment Guidelines

7.1 Context

Countries in South Asia like India, Sri Lanka, Bangladesh and Pakistan are likely to continue their dependence on conventional sources, which are becoming more expensive while Afghanistan, Bhutan and Nepal all have the potential to supply electricity from large hydroelectric resources in excess of their own demands in a cost effective way. The countries of the South Asia region also have non-coincident demand peaks across the year, implying gains from trade.

There is large untapped hydropower potential in the Himalayan region, which has not been exploited to meet the growing energy demand in the region. The development of cross-border electricity transmission interconnections and electricity trades among SACs have been limited to bilateral exchanges, implying that countries in the region may be missing significant opportunities for gains from trade through lower electricity supply costs.

The World Bank paper¹¹ has estimated that in case of no further expansion of cross-border transmission interconnections than what already exist or are being constructed, the total generation capacity in the region would increase by almost 750 GW by 2040 while regional electricity cooperation and trade would lead to notable reallocations of capacity investments across the region. Over the 2015-2040 period, installed generation capacity requirement could fall by 35 GW in India, 13 GW in Pakistan, and 11 GW in Bangladesh while capacity could increase by 52GW and 9GW in the generation capacities in Nepal and Bhutan respectively, and by 4 GW in Afghanistan. According to the paper, South Asia is projected to require USD 1,390 billion for expanding electricity generation (around 750 GW of generation capacity) during the 2015-2040 period while the inter-grid connections would require around USD 29 billion.

Based on the review of prevailing legal, policy, and regulatory frameworks in SACs and the review of CBET practices undertaken in different regions of the world (including various power pools and power system integration schemes), the following key parameters that affect investments in CBET have been identified:

- Regional investment coordination forum for CBET.
- Harmonisation of investment framework for regional electricity projects.
- Guarantee against political and country risks.
- Fast track project approvals and clearance.
- Address financial risks for achieving financial closure.
- Regulatory harmonisation and institutional capacity building.

The guidelines proposed herein are based on the following: (i) review of the existing CBET transactions and the existing laws, policies, and regulations; and (ii) review of the international experience of various power pools and CBET regimes including South African Power Pool, Greater Mekong Sub-region, West African Power Pool, Gulf Cooperation Council, Georgia–Turkey interconnection, and ASEAN Power Grid.

7.2 Purpose of Investment Guidelines

The investment guidelines have been developed to evolve a conducive and investor friendly environment for cross-border electricity projects that provides reasonable security to the participants involved in cross-border trade transactions.

¹¹Working Paper - How Much Could South Asia Benefit from Regional Electricity Cooperation and Trade? - Govinda Timilsina, Michael Toman, Jorge Karacsonyi, Luca de Tena Diego

The objective of these guidelines is to provide government agencies, utilities, and empowered entities of SACs with a common course of action that can be referred to for decision making on investment requirements for CBET in their respective countries. This will ensure consistency in the CBET transactions and will remove the barriers that impact the timely completion of cross border electricity projects.

The Regional Investment Guidelines and the supporting explanatory memorandum (Annexure-I) are described in the form of principles and processes that need to be adopted on various aspects. The guidelines and the framework are sufficiently flexible to work with different national legal, policy, and regulatory frameworks. The provisions allow accommodating the different circumstances in different countries, yet have a sufficiently broad application to promote consistent decision making.

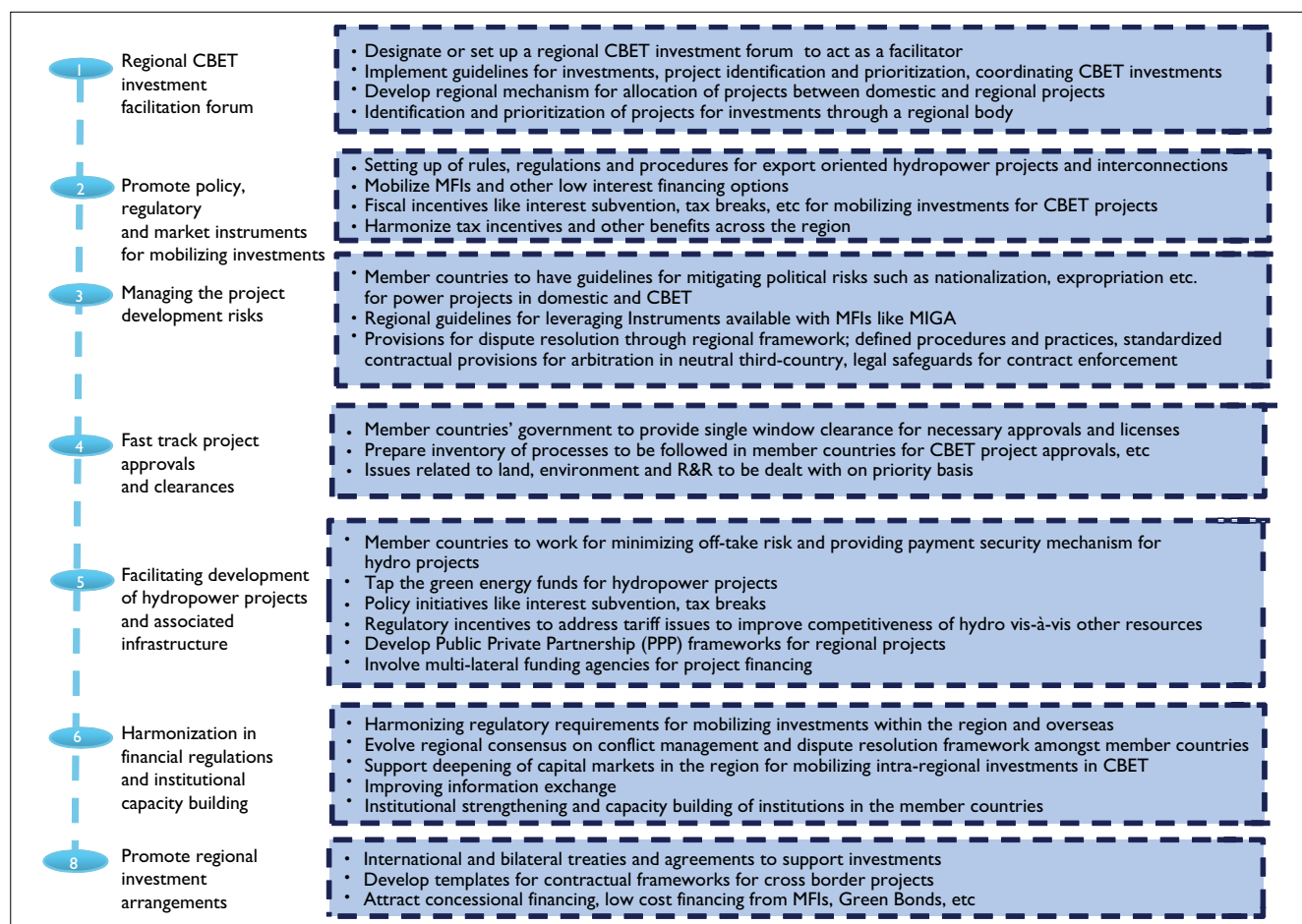
7.3 Regional Investment Framework

It is envisaged that the governments of SACs would concur on the Regional Investment Guidelines. These will be non-binding in nature and will not have a formal legal status. These guidelines are proposed to be flexible in nature and focus only on specific aspects of CBET that support the development of regional cross border electricity trade assets.

7.4 Brief Summary of Investment Guidelines

A brief summary of the investment guidelines is provided in the Figure-17 below.

Figure 17 Summary of Investment Guidelines



7.5 Detailed Investment Guidelines

The detailed regional investment guidelines are as follows.

7.5.1 Preamble

- i. These investment guidelines apply to CBET among the SACs.
- ii. These guidelines are non-binding in nature and are aimed at providing national governments of SACs with a consistent set of investment guidelines applicable to CBET.
- iii. The guidelines deal only with limited areas where need for such common guidelines has been felt by the SACs and are not meant to comprehensively deal with all matters related to CBET.
- iv. An institutional framework shall be the institutional body working towards enabling the guidelines and facilitating required changes to be made in the national regulatory framework. Such an entity shall work in close coordination with the other established institutions like SAARC Secretariat and various bodies under the same.

7.5.2 Guideline 1: Regional CBET Investment Facilitation Forum

It is proposed that a coordinating agency be established at the regional level to manage the investments in the cross border electricity trade assets. It is proposed that several institutions be established at the regional level and the responsibility of coordinating the investment framework be delegated to one of these institutions. The designated institution for promotion of investments will be empowered as a formal association through a separate declaration or cooperation agreement among the member countries and will perform its duty in close coordination with national level authorities/departments of member countries.

1. Key objectives

“Regional investment promotion forum is focused at working towards creating an eco-system to promote the regional investment in the electricity sector and CBET among SAARC nations.”

2. Key functions

The forum will have the following strategic functions to promote investment in the power sector and CBET projects amongst South Asian nations.

1. Facilitate in standardisation of power purchase agreement and other contract documents to harmonise capital investment experience in the region.
2. Facilitate capacity building among member countries for awareness of protecting the investments made in regional CBET projects.
3. Assist in financing priority projects and actively market them to investors for development.
4. Act as a facilitator and build consensus for integration of capital markets in the region for the purpose of financing large scale cross border projects.
5. Act as a single window for providing information regarding projects and investment requirements and available risk mitigation instruments in the member countries.
6. Provide a forum for discussion of important issues such as pricing, dollar denominated PPA and other enabling factors to smoothen investment experience in the region.

7.5.3 Guideline 2: Promote policy, regulatory and market instruments for mobilising investments

Rationale: The CBET projects are capital intensive with generally long gestation periods. Mobilising private sector investments are critical for the long-term sustainability. The respective governments in the region need to ensure that the laws and regulations dealing with long-term investments and/or investors are clear; their implementation and enforcement is easy and do not impose unnecessary burdens.

To promote investments in power sector and CBET, it is imperative that the regulatory framework across the geographies gets harmonised. While respective countries in the region would have their own national policies and regulations, it is important to achieve a certain level of coordinated standardisation, specifically technical standards for grid operation and security, pricing calculation, energy accounting, energy banking and operational parameters, grid security, which will enable the development of the CBET project among SACs. Coordination among national regulators would bring clarity to project developers and investors for investments in regional power projects.

Member countries shall aim to recognise investments in the CBET projects as a distinct activity to be promoted through appropriate policy, regulatory and financial instruments.

- Investments in CBET shall be promoted through the existing laws or regulations or through enactment of separate enabling policies.
- The investment protection framework in respective countries shall be made transparent and coherent to attract foreign investments.
- Member countries to move towards rationalising export/import duty/levies/fees/taxes, etc., for CBET.
- National governments shall facilitate the implementation of a zero tax regime through modification/ amendment of extant notifications/regulations.
- The national regulators subject to their national legal and policy requirements shall strive to achieve a certain level of coordinated standardisation, specifically technical standards for grid operation and security, pricing calculation, energy accounting, energy banking and operational parameters, grid security, which will enable the development of the CBET project among SACs.
- Member countries' regulators shall provide guidelines for tariff determination mechanism, specifically for hydropower projects and associated infrastructure having long gestation period.
- The investment facilitation forum shall work with the SACs to bring in consistency on the foreign investments focused on regional electricity projects and to create an eco-system conducive to the promotion of investment in CBET projects.

7.5.4 Guideline 3: Address CBET project development risks

Rationale: Political risk for the cross border electricity projects is considered to be a key risk for foreign investors. A government's willingness to support the projects and provide appropriate political risk cover are significant indicators for an investor to judge the sustainability of their investment in the host country. The stability of governments, track record of governments in SAC, consistency in the policy and regulatory functions are important benchmarks for the investors to take guarantees against political risks, which covers breach of contract, event of nationalisation and expropriation, etc., caused by the host government.

Political risk mitigation instruments can help mobilise commercial debt and private equity when governments or local infrastructure entities lack the creditworthiness or track record to attract finance on their own. This is done by transferring to third parties (multilateral or bilateral) or private institutions, those risks that private lenders or investors are unable or unwilling to take. Multilateral development banks offer Partial Risk Guarantees (PRG) for debt providers, while multilateral insurance agencies offer Political Risk Insurance (PRI) for debt and equity. These institutions offer partial coverage so as to share risk with private financiers, and use of their instruments is conditional to meeting their development objectives.

The financial closure for the project is dependent on the payment security mechanism available for the project. Most international investors insist on reducing currency risks through foreign denominated PPAs, back to back currency swaps, etc.

Managing off-taker risk is a big challenge in South Asia due to distressed financial conditions of most public sector utilities. Managing payment security risks and evolving consensus on providing appropriate mechanisms for the same on CBET is important.

The regional CBET investment facilitation forum shall work with South Asian governments to evolve common instruments for guarantees to be provided by SACs for CBET projects.

- Member countries to have guidelines for mitigating political risks such as nationalisation, expropriation etc. for domestic power projects and CBET.
- Regional guidelines for leveraging instruments available with MFIs like MIGA.
- Provisions for dispute resolution through regional framework - Clearly defined and standardised dispute resolution procedures are an essential element of CBET. In case of any dispute with respect to CBET, the member countries shall primarily try for an amicable settlement of such disputes by using the dispute resolution procedures mentioned in their contracts.
- The dispute resolution mechanism shall leverage the established or proposed regional institutions in the region like SAARC Arbitration Council, which is governed by SAARC Arbitration Rules.
- Member countries to have defined procedures and practices and appropriate legal safeguards for contract enforcement.

7.5.5 Guideline 4: Fast track project approvals and clearances

Context: Development of power projects is critically dependent on the successful acquisition of land, securing associated licenses for development of projects, clearances relating to the environment and timely completion of the R&R process. A government's readiness to help investors in these processes can help expedite the process and reduce the developer's risk.

Preparing an inventory of CBET projects and prioritising the development of the same will assure the investors and improve overall viability. In addition, the local processes followed in member countries for CBET projects' approvals and clearances would be identified and streamlined for consistency across geographies. Government agencies can evolve a single window concept with prior identification of sites while securing associated licenses and clearances to enable developers to quickly start developing the project. This will be even more crucial for the CBET projects where the involvement of various departments from multiple countries can complicate the process.

- The regional investment forum will facilitate the preparation of inventory of CBET projects and prioritise them in consultation with the member countries.
- South Asia region member countries shall map the processes for approvals and clearances required during the different phases of project implementation and provide it to the forum for wider circulation to project developers and investors.
- Member countries shall strive for developing single window clearance mechanisms for the necessary approval, licenses etc. related to land acquisition and associated activities for the CBET projects.
- A nodal agency shall look after these clearances and coordinate with the respective governments.
- Respective departments, ministries in the member countries shall be notified about the selected projects.
- These departments, ministries shall ensure clearances as per the existing rules and regulations in the member country.

7.5.6 Guideline 5: Facilitating development of hydropower projects and associated infrastructure

Rationale: Development of hydropower power projects for CBET is capital intensive and there could be limitations at the country level that prevent exploitation of the available resources. The national governments may not be able to finance all the large-scale investment requirements. The involvement of private sector participation, both domestic and foreign is important for the development of large hydropower projects.

In order to attract investments, both intra-regional and from outside the region, it is necessary that SAC evolve a power sector investment policy framework, which addresses the key concerns of investors, specifically relating to FDI like repatriation of profits, dividends, or proceeds from sales, long-term and stable tax regime, etc. The effective and comprehensive FDI policy framework will reduce the uncertainty that project developers face in taking up cross border energy projects.

Options of innovative finance such as Green Bonds should also be explored for hydro and CBET power projects in SAC.

Member countries to coordinate efforts for developing an investment friendly ecosystem to harness the hydropower potential in the region through:

- Minimising off-take risk by providing payment security mechanisms.
- Coordinate hydro resource development plans to align country specific demand-supply issues.
- Tap cheap financing options like global green energy funds for hydropower projects.
- Undertake policy initiatives like interest subvention and tax breaks.
- Provide regulatory incentives to address tariff issues to improve competitiveness of hydro vis-à-vis other resources.
- Develop PPP frameworks for hydropower projects.
- Involve multi-lateral funding agencies for project financing.

7.5.7 Guideline 6: Harmonisation in financial regulations and institutional capacity building

Rationale: Harmonising capital markets is a crucial step toward greater integration of capital markets. An integrated, regional capital market characterised by free movement of capital or capital market services across countries, allows an investor in one country to invest in another country in the region. Integrated capital markets encourage competition, enhance innovation, attract wider participants, and provide deeper liquidity. All of these benefits reduce the overall cost of capital and investment, which is critical for capital intensive projects.

To enhance regional investment in South Asia, the member countries shall coordinate and take the following measures.

- Support the development of debt markets - Availability of long-term debt funding instruments in order to promote hydropower projects.
- Support investor friendly FDI policies for promotion of intra and inter regional investment in the power sector in South Asia. The national governments/concerned ministries of South Asia shall evolve consistent guidelines for investors. Respective countries shall prepare rules and procedures within the country's applicable laws, regulations and inter-governmental agreements.
- Enablement of non-discriminatory regional investment shall be defined through modification/ amendment of applicable regulations or shall be through the enactment of separate regulations/ orders applicable to CBET.
- Coordinate efforts in removing the barriers within the existing regional frameworks. For example, as per Article 4: Duties and taxes of, SAARC Framework Agreement for Energy Cooperation (Electricity) "Member states may work towards exempting from export/import/duty/levies/fees, etc. for cross-border trade and exchange of electricity between buying and selling entities."
- Support the development of regional institutions and industrial bodies.
- Options of innovative finance such as Green Bonds should also be explored for hydro and CBET power projects in SACs.

7.5.8 Guideline 7: Promote regional investment arrangements

Context: The existence of regional agreements, guidelines, standardised agreements are essential for improving investor confidence. The international and regional treaties/agreements play an important role in conflict management arising out of disputes on contractual arrangements between governments, the government and private sector or two private parties.

The member countries would commit to the development of a regional investment framework through:

- Recognising international conventions and treaties to safeguard the interests of the various stakeholders.
- Institutionalisation and dispute resolution mechanism through a transparent, fair, commonly accepted legal framework and clearly defined dispute resolution procedures are an absolute necessity as they govern and affect the existing and future trade relations between two countries.
- Any dispute arising out of the interpretation and/or implementation of the agreements/contracts entered into shall be resolved amicably among the member states.
- If unresolved, the member countries may choose to refer the dispute to the SAARC Arbitration Council. The SAARC Arbitration Rules shall govern the arbitration procedure.

8 Annexures

Annexure I: Explanatory Memorandum for Guidelines

I. Regional CBET investment facilitation forum

It is proposed that a coordinating agency be established at the regional level to manage the investments in CBET assets. The designated institution for promotion of investments will be empowered as a formal association through a separate declaration or cooperation agreement among the member countries and will perform its duty in close coordination with national level authorities/departments of member countries.

Current Practice in South Asia

The regional institutions in South Asia do not have focus on the development of CBET though it has been proposed that several institutions like SAFER be established at the regional level. The existing framework supports bilateral arrangements for facilitating development of cross border electricity infrastructure.

International Experience

South African Power Pool (SAPP): The SADC guidelines provide an enabling framework for cross-border trade and investment in infrastructure, thereby addressing the trade barriers. The first SAPP energy plan was prepared in 2001 with successive updates in 2005 and 2009. The existing interconnections in SAPP were largely inherited from pre-SAPP days. These were mainly bilateral projects for firm, economy, and emergency power purchases.

The generation and transmission projects of regional importance are prioritised, and a majority of them are developed together with the private sector. Export-oriented projects are identified, and their development is linked with the development of the transmission lines. The prioritisation of transmission projects is done on the following basis:

- Category A: Transmission projects for alleviating congestion caused due to the regional trade and development of the Day Ahead Market.
- Category B: Transmission projects to ensure interconnection of all non-operating members: Outstanding transmission interconnectors whose aim is to interconnect non-operating members of the SAPP.
- Category C: Transmission projects related to new generation capacity: New transmission interconnectors aimed at evacuating power from generating stations to the load centres.

West African Power Pool: The WAPP investment programme is derived from the Economic Community of West African States' (ECOWAS) Master Plan. The Master Plan defines priority projects for development in the region, as identified by the Secretary General in collaboration with funding/donor agencies. The Master Plan focuses on the interest of developing the hydroelectric resources in Western Africa and to build a reliable transmission network to share the resources in the whole region. For this purpose, the WAPP states were divided into two zones, and 14 major priority interconnections were identified. The projects are identified as national projects for production, regional projects for production, and regional projects for inter-connection.

GMS: An Electric Power Forum (EPF) was constituted in 1995 under the GMS Economic Cooperation Programme to serve as an advisory body on sub-regional power projects and issues. The EPF reported to the Ministerial Conference and the respective governments on treaties and protocols. The inter-governmental agreement provided a framework to implement the Policy Statement on Regional Energy Trade in the GMS.

In 2002, the Energy Ministers of the GMS endorsed the **Policy Statement on Regional Power Trade** in the region. This policy statement establishes the objectives and principles for power trade among the GMS member countries. One of the objectives of the Policy Statement is to promote the efficient development of the regional power sector and regional power trade in order to aid economic growth. Further, the objectives are supported by a set of guiding principles recognised by each GMS country given below:

- Each member recognises and endorses international trading in electric power to be an integral part of its policies to strengthen its electricity sector;
- Each member recognises the importance of technical harmonisation of electric power transmission parameters and practices with eventual interconnection in mind;
- Each member recognises the desirability of foreign direct investment on reasonable terms in its electric power sector in order to speed economic development in the GMS.

Recommendation for South Asia:

CBET in South Asia is presently being undertaken on a case-by-case basis with selective planning for future trade. For an integrated development of the regional CBET infrastructure, it is imperative for all the member countries to coordinate the investment and transmission plans.

The forum will have the following strategic functions to promote investment in the power sector and CBET projects amongst South Asian nations.

1. Facilitate in the standardisation of, power purchase agreements and other contract documents to harmonise capital investment experience in the region.
2. Facilitate capacity building among member countries for awareness of protecting the investments made in regional CBET projects.
3. Assist in financing of priority projects and actively market them to investors for development.
4. Act as a facilitator and build consensus for integration of capital markets in the region for the purpose of financing large scale cross border projects.
5. Act as a single window for providing information regarding projects and investment requirements and available risk mitigation instruments in the member countries.
6. Provide a forum for the discussion of important issues such as pricing, dollar denominated PPAs and other enabling factors to smoothen the investment experience in the region.

1. Promote policy, regulatory and market instruments for mobilising investments

To promote investments in the power sector and CBET, it is imperative that a regulatory framework across the geographies is harmonised. While respective countries in the region would have their own national policies and regulations, it is important to achieve a certain level of coordinated standardisation, specifically technical standards for grid operation and security, pricing calculation, energy accounting, energy banking and operational parameters, grid security, which will enable the development of the CBET project among SACs. Coordination among national regulators would bring clarity to project developers and investors for investments in regional power projects.

Current Practice in South Asia

India has a well-established dispute resolution mechanism, and the same has been incorporated in the bilateral contracts with Bhutan, Nepal, and Bangladesh. As the agreement with Bhutan is part of the umbrella agreement executed in July 2006 between the ministries, the first leg of dispute resolution is between the two ministries. Contracts with Nepal and Bangladesh have arbitration and local courts for dispute resolution. The draft CERC regulations on Cross Border Trade of Electricity, 2017 provides for the following:

- In case of government-to-government agreement, Secretary (Power) of GoI and the concerned Secretary to government of the neighbouring country will attempt to resolve the dispute.
- If the dispute is not resolved within 30 days, it shall be referred to and finally settled by arbitration in accordance with the SIAC Rules. The seat and venue of the arbitration shall be Singapore and the arbitration proceedings shall be conducted in English language.

International Experience

In many regional pools, differences in the countries' commercial frameworks with respect to the export/import of electricity present a hurdle to the development of trading. Examples of this are taxation issues. Taxes on importing and exporting electricity often become a deterrent to CBET and prevent optimal utilisation. In SAPP, the energy taxes factor in the pricing of electricity, and the countries are charged VAT for the electricity they import; however, this money is claimed back at the end of the financial year. SAPP follows the principle of National Treatment, which means that imported electricity shall not be subjected to internal taxes greater than those for similar electricity of domestic origin.

The review of various power pools/regions (SAPP, GMS, WAPP, and Georgia – Turkey interconnection) shows that dispute resolution and settlement procedures are part of the inter-country agreements and treaties. Further, dispute resolution procedures are also part of PPAs, which are negotiated bilaterally.

Across pools the most preferred method of dispute settlement is amicable settlement between the parties. In case the parties fail to resolve disputes amicably then it is further referred to the governments/ministries of the parties. The last resort of settlement is through international arbitration as per UNCITRAL rules/procedure as mentioned in the agreements/treaties.

In WAPP, ECOWAS has introduced dispute resolution mechanisms and incorporated Alternative Dispute Resolution (ADR) practices within its court. ADR includes dispute resolution processes and techniques that act as a means for disagreeing parties to come to an agreement short of litigation. It is a collective term for the ways that parties can settle disputes, with (or without) the help of a third party.

Recommendation for South Asia

Member countries shall aim to recognise investments in the CBET projects as a distinct activity to be promoted through appropriate policy, regulatory and financial instruments.

- Investments in CBET shall be promoted through the existing laws or regulations or through enactment of separate enabling policies.
- The investment protection framework in respective countries shall be made transparent and coherent to attract foreign investments.
- Member countries to move towards rationalising export/import duty/levies/fees/taxes, etc., for CBET.

- National governments shall facilitate the implementation of a zero tax regime through modification/ amendment of extant notifications/regulations.
- The national regulators subject to their national legal and policy requirements shall strive to achieve a certain level of coordinated standardisation, specifically technical standards for grid operation and security, pricing calculation, energy accounting, energy banking and operational parameters, grid security, which will enable the development of the CBET project among SACs.
- Member countries' regulators shall provide guidelines for tariff determination mechanisms, specifically for hydropower projects and associated infrastructure with long gestation periods.
- The investment facilitation forum shall work with the SACs to bring in consistency on foreign investments focused on regional electricity projects and to create an eco-system conducive to the promotion of investment in CBET projects.

2. Address CBET project development risks

Political risk for cross border electricity projects is considered to be a key risk factor for foreign investors. A government's willingness to support the projects and provide appropriate political risk covers are significant indicators for an investor to judge sustainability of their investment in the host country. The stability of governments, track record of governments in following SACs, consistency in the policy and regulatory functions are important benchmarks for investors to take guarantees against political risks, which cover breach of contract, event of nationalisation and expropriation, etc., caused by the host government.

Managing financing risks involved in cross border projects is crucial for developing power projects in SACs. Availability of long-term financing has been a challenge in the region and improving conditions for attracting long-term financing would also help in reducing the cost of financing.

Off-taker risk is a big impediment in South Asia power project financing due to the financial condition of most utilities. Financial closure for the project is dependent on the payment security mechanism available for the project. Most international investors insist on reducing currency risks through foreign denominated PPAs, back to back currency swaps, etc. this is very critical for hydropower projects with long gestation periods. The stability of the regulatory regime determining the tariffs for the projects plays an important role. Another key factor is the availability and cost of arranging the insurance instruments in SACs.

Managing payment security risks and evolving consensus on providing appropriate mechanisms for the same on CBET is important. Member countries who have guidelines for foreign currency denominated PPAs to protect against currency risks, allow back-to-back currency swaps etc.

Current Practice in South Asia

The existing and on-going CBET projects have been undertaken on bilateral arrangements and hence do not have much exposure to political risks. However, Multilateral Investment Guarantee Agency (MIGA) coverage has been provided to several hydropower projects in the region, particularly in Pakistan. For instance,

- MIGA issued a guarantee of \$148.5 million to cover an equity investment in Star Hydro Power Limited Pakistan (2012) for a **period of up to 20 years** against the risk of **breach of contract**.
- MIGA issued guarantees of \$82.7 million covering investments for a **period of up to 15 years** against the risk of **breach of contract** for Gulpur Hydro Power project in Pakistan (2015).

- MIGA's coverage of \$32.8 million insures equity investments in the 60 MW Himal Power Plant in Nepal against currency transfer, expropriation, and war risks (1996).

State Electricity Boards (SEBs) are usually the sole purchasers of the power that a private sector generator generates. As a result, the payment default risk is perceived to be high and the private sector runs the risk of delayed payments or payment defaults by distribution utilities/SEBs (who are in poor financial health). The risks exposure of the private producers is usually sought to be addressed in the PPAs. But the power purchase agencies insist on a one-sided PPA agreement loaded in their favour.

In India, the key off-taker risks are being mitigated with the following instruments:

- An escrow account guaranteeing payment on behalf of the SEBs – Cash inflows of the SEB are deposited and to which the generating agency (say an independent power producer) would have first access in case of defaults by the SEB.
- An irrevocable letter of credit, favouring the IPP on certain conditions being met and issued by a highly rated bank/financial institution.
- An agreement by which the IPP could supply electricity directly to buyers, through the existing lines.

In Bangladesh, the cross border trade agreements have been signed in foreign currency (US dollars) thus mitigating the currency devaluation risk.

Nepal has recently announced guidelines for foreign currency denominated PPAs, which would address the rupee devaluation risk to a certain extent. For the oil sector, the Government of Nepal has seeded a Price Stabilisation Fund with NRs 500 million (around US\$ 5 million) through which Nepal Oil Corporation Limited (NOCL) will adjust fuel prices on the basis of rates forwarded to it every two weeks by the Indian Oil Corporation (IOC), the NOC's sole supplier. If petroleum product prices rise by more than two per cent, the NOC will draw on the fund to moderate the increases passed on to consumers; if prices decrease by more than two per cent, the NOC will make deposits into the fund to build it up against future shocks.

International Experience

MIGA's coverage has been extensively used for cross border electricity projects.

- MIGA issued a guarantee of \$91 million for Nam Theun II Project in Lao PDR and Thailand. EDF International, Fortis Bank NV, Fortis Banque SA were the guarantee holders.
- MIGA issued guarantee of \$ 115 million for the Bujagali Energy Ltd.
- In Georgia, MIGA is backing the country's first hydropower plant developed by the private sector on a project-finance basis. The project involves the construction and operation of the 187-megawatt Shuakhevi Hydropower Project.
- The Nam Theun 2 Project (NT2) involves the construction of a 1,070 MW hydroelectric storage project in Lao PDR with the capacity to deliver 5,600 GWh annually to Thailand via a dedicated interconnector. A small portion of the production is supplied to customers in Laos. The political risk coverage for the project included IDA USD 42 million PRG; USD20 million credit MIGA; USD 91 million PRI.

Risks related to weak local financing mitigated through syndicated loans from several local banks - Emerging Africa Infrastructure Fund provides long-term loans denominated in US dollars or Euros on commercial terms for infrastructure projects in Africa (Rabai Power Project in Kenya).

GMS has several instances of the payment risk being addressed through contracts in the interconnection projects.

- Thailand-Cambodia interconnection project in GMS has addressed the payment security risks where the loan structure included strict controls over the project's bank accounts. The bank accounts specifically dedicated to the CPTL project needed to be opened and maintained outside the country i.e. a country other than Cambodia and Thailand. All amounts payable to the project were required to be paid into the offshore account and could only be withdrawn according to the payment priorities and amount limits specified in the loan document.
- Laos – Thailand interconnection (Theun- Hinboun Hydro): Commercial banks were reluctant to provide funding for a JV in Lao PDR. The following methods were adopted to help in securing commercial lending:
 - THPC has to set up an offshore escrow account for all payments by EGAT.
 - Initial risk of the project was borne by two foreign shareholders who committed in the shareholder agreement that they would provide corporate guarantees, with each assuming half responsibility, for the remaining financing requirements if, all other efforts fail.
 - To promote commercial financing for the project ADB waived its first right to THPC's assets to help THPC in obtaining commercial loans against THPC's assets as security.

The foreign exchange or currency fluctuation risks in CBET projects have been addressed by including appropriate clauses in the PPA. For instance

- Laos – Thailand interconnection (Theun- Hinboun Hydro): The payment is determined half in US dollars and half in the local currency (baht) at a fixed exchange rate. This payment term has both advantages and risks:
 - If the US inflation rate increased by more than one per cent, the tariff will **decrease** in real terms.
 - The baht exchange rate fixed for a particular time period meant that revenue in US dollars depends on the fluctuations in this rate.

Recommendations for South Asia

Political risk mitigation instruments can help mobilise commercial debt and private equity when governments or local infrastructure entities lack the creditworthiness or track record to attract finance on their own. This is done by transferring to third parties (multilateral or bilateral) or private institutions, those risks that private lenders or investors are unable or unwilling to take. Several instruments are available in the international market, which can support capital inflows into countries perceived to be high political risks.

The regional investment facilitation forum shall work with the South Asian Governments to evolve common instruments for guarantees to be provided by SACs for CBET projects. It will formulate guidelines for guarantees to be provided by governments, which would cover the following issues:

- Nationalisation or Expropriation—losses from acts by the host government that may reduce or eliminate ownership of, control over, or rights to the insured investment.
- War and civil disturbance—losses from damage to, or the destruction or disappearance of, tangible assets caused by politically motivated acts of war or civil disturbance in the host country.

Some political risk insurance policies may cover in addition other, less traditional political risks:

- Breach of contract—losses from the host government’s breach or repudiation of a contract.
- Arbitration award default—losses arising from a government’s non-payment when a binding decision or award by an arbitral or judicial forum cannot be enforced.

The financing risk can be addressed by evolving a regional payment security mechanism for CBET projects incorporating one or more of the following.

- The SACs should smoothen listing requirements in the domestic capital market for power sector firms from other SACs, which would help addressing the domestic project financing requirements. This will include permission of cross-country listing of power firms in SACs and equal treatment with domestic firms in terms of taxes and other regulatory aspects.
- Options of natural hedge should be articulated for regional trade contracts in CBET projects. Respective governments may consider the proposal to balance monetary assets against monetary liabilities to neutralise the effect of exchange-rate fluctuations between the participating member countries.
- Member countries should have integrated planning for power off-taking in CBET projects. This will include provisions of penalty on the off-taker as well as on the generator, upon non-honouring of the off-take contract.
- Payment security guarantee should be provided by the off-taker during the tenure of project operation so as to minimise the revenue risk for the developer.
- Integrated transmission planning so that there is sufficient infrastructure to evacuate power after generation in the member country.
- There should be standardised power purchase agreements in the region to ensure minimum discrepancy in case of CBET trade.

3. Fast track project approvals and clearances

Development of power projects is critically dependent on the successful acquisition of land, securing associated licenses and clearances of environment and R&R. The government’s readiness to help investors in these processes can help expedite the process and reduce the developer’s risk. Preparing an inventory of CBET projects and prioritising the development of the same will provide assurance to the investors and improve the overall viability. In addition, the local processes followed in member countries for CBET projects’ approvals and clearances would be identified and streamlined for consistency across geographies.

i. Current Practice in South Asia

Member countries follow their respective policies on the approval of CBET projects and the developers have to adhere to the national laws for obtaining various clearances. There is no centralised inventory of projects and most CBET projects are identified and developed based on bilateral agreements.

ii. International Experience

In SAPP, WAPP, GMS Regional Planning w.r.t prioritisation of projects in the regional master plans, identification and development of export oriented power plants (to supply power to other countries) is linked to the development of the transmission lines.

iii. Recommendation for South Asia

- The regional investment forum will facilitate preparation of inventory of CBET projects and prioritise them in consultation with the member countries.
- SACs member countries shall map the processes for approvals and clearances required during the different phases of project implementation and provide it to the forum for wider circulation to the project developers and investors.
- Member countries shall strive for developing single window clearance mechanisms for the necessary approval, licenses etc. related to land acquisition and associated activities for the CBET projects.
- A nodal agency shall look after these clearances and coordinate with respective governments.
- Respective departments, ministries in the member countries shall be notified about the selected projects.
- These departments, ministries shall ensure clearances as per the existing rules, and regulations in the member country.

4. Facilitating development of hydropower projects and associated infrastructure

The development of hydropower power projects for cross border energy trade is capital intensive and there could be limitations at the country level to exploit available resources. The national governments may not have the ability to finance all the large-scale investment requirements. The involvement of private sector participation, both domestic and foreign is important for the development of large hydropower projects.

In order to attract investments, both intra-regional and from outside the region, it is necessary that SACs evolve a power sector investment policy framework which addresses the key concerns of investors, specifically relating to FDI like repatriation of profits, dividends, or proceeds from sale, long-term and stable tax regime, etc. The effective and comprehensive FDI policy framework will reduce the uncertainty for the project developer in taking up cross border energy projects. Options of innovative finance such as Green Bonds should also be explored for hydro and CBET power projects in SACs.

Current Practice in South Asia

No investment framework exists in South Asia for facilitating the development of hydropower projects. Most countries have their own hydropower policies (India, Nepal, Bhutan) for developing hydropower projects. These policies are supported by regulations and commercial arrangements.

International Experience

In WAPP, for the mobilisation of investment in clean, efficient and renewable energy technologies, the ECOWAS Renewable Energy Facility (EREF) and the ECOWAS Renewable Energy Investment Initiative (EREI) have been proposed.

Recommendation for South Asia

Member countries to coordinate efforts for developing an investment friendly ecosystem to harness the hydropower potential in the region through

- Minimising off-take risk by providing payment security mechanisms.
- Coordinate hydro resource development plans to align the country specific demand-supply issues.
- Tap cheap financing options like global green energy funds for hydropower projects.
- Undertake policy initiatives like interest subvention and tax breaks.

- Provide regulatory incentives to address tariff issues to improve competitiveness of hydropower vis-à-vis other resources.
- Develop PPP frameworks for hydropower projects.
- Involve multi-lateral funding agencies for project financing.

5. Harmonisation in financial regulations and institutional capacity building

Development of power projects (generating and transmission) for CBET is resource and time intensive. Country governments may not be able to finance all the large-scale investment requirements. Therefore private sector participation through the FDI route is critical. The capital markets in many SA countries are not strong and deep enough to manage the debt funding for regional investments required within the expected timelines. The deepening of regional capital markets by developing regional debt markets and allowing firms to list in other member countries in the region can help improve the availability of funds. Options of innovative finance need to be explored.

Current Practice in South Asia

The investment promotion framework for the electricity sector in South Asia is consistent with the countries' policies to invite foreign investment in the respective countries. The FDI policies in SACs pose no restrictions on converting, remitting or transferring funds associated with investments. All the countries allow 100 per cent foreign equity participation in the power sector except for Bhutan, which has a limit of 70 per cent. Countries like Bhutan, Pakistan and Bangladesh have minimum capital requirement limits. All countries provide tax incentives to foreign investment in order to encourage them to invest in their country.

Presently, there are no duties and taxes that are applicable to CBET in the region. However, in Nepal, the provision for payment of export/import duty (under the Electricity Act) exists although the currently applicable export/import duty is zero. As per the Act, the exporter of electricity shall have to pay export duty to the Government of Nepal.

Most of the South Asian countries have signed bilateral investment treaties with a number of developed and developing countries though it had little impact on attracting intra-regional FDI.

International Experience

Risks related to weak local financing mitigated through syndicated loans from several local banks - Emerging Africa Infrastructure Fund provides long-term loans denominated in US dollars or Euros on commercial terms for infrastructure projects in Africa (Rabai Power Project in Kenya).

JBIC (Japan Bank for International Cooperation) facility for African Investment provides lending in hard currency; equity investments; guarantees for loans of private banks; local currency financing for projects (financing for Eskom's Northern Grid Transmission Project).

In GMS, the Nam Theun 2 (NT2) is an enclave project in which output from a newly built generation facility is almost entirely devoted to export. Most of the contracted output is on a take-or-pay basis at prices agreed upon in a power purchase agreement. A special purpose vehicle, the Nam Theun 2 Power Company (NTPC), was created to build, own, and manage the facility. NTPC is incorporated in Laos under Lao law as a foreign investment company. It is a JV between: Electricité de France International (35%), Lao Holding State Enterprise (25%), Italian-Thai Development Public Company, Ltd. (15%), and Electricity Generating Public Company (EGCO) of Thailand (25%). NTPC brings together the project developers, representatives of the host governments, and (indirectly) the power purchasers. (EGCO is partially owned by the Electricity Generating Authority of Thailand—the power purchaser.)

With respect to ownership, all of the generators and interconnectors in the SAPP region are in public ownership, with the assets being reflected in the books of the national utilities. In some cases, SPVs have been formed to execute joint projects (such as MOTRACO, which is jointly owned by Eskom, SEB and EDM).

i. Recommendation for South Asia

To enhance regional investment in South Asia, the member countries shall coordinate and take the following measures.

- Support the development of a debt market - Availability of long-term debt funding instruments in order to promote hydropower projects.
- Support investor friendly FDI policies for the promotion of intra and inter regional investment in the power sector in South Asia. The national governments/concerned ministries of South Asia shall evolve consistent guidelines for the investors. Respective countries shall prepare rules and procedures within the country's applicable laws, regulations and inter-governmental agreements.
- Enabling non-discriminatory regional investment shall be defined through modification/amendment of applicable regulations or shall be through enactment of separate regulations/orders applicable to CBET.
- Coordinate efforts in removing the barriers within the existing regional frameworks. For example, as per Article 4: Duties and taxes of, SAARC Framework Agreement for Energy Cooperation (Electricity) "Member states may work towards exempting from export/import/duty/levies/fees, etc. for cross-border trade and exchange of electricity between buying and selling entities."
- Support the development of regional institutions and industrial bodies.
- Options of innovative finance such as Green Bonds should also be explored for hydro and CBET power projects in SACs.

6. Promote regional investment arrangements

The existence of regional agreements, guidelines, standardised agreements are important for improving investor confidence. The international and regional treaties and agreements play an important role in conflict management arising out of disputes on contractual arrangements between governments, the government and private sector or two private parties.

Current Practice in South Asia

Member countries have signed international agreements and are also participants in the regional framework under SAARC.

International Experience

SAPP: In the year 1992, the heads of countries of Southern Africa signed the Declaration and Treaty of SADC. The Treaty recognised the need for stronger regional integration throughout Southern Africa for further development of the region in different areas of cooperation including infrastructure.

- Inter-Governmental MOU (IGMOU): IGMOU was signed by SADC member countries in 1995 for forming a power pool in the region. The document was revised in 2006 and then subsequently in 2010, the MOU granted permission for the utilities to participate in SAPP and enter into new contracts and guarantees the financial and technical performance of the power utilities. IGMOU establishes that the SAPP agreements must be interpreted in a manner consistent with the SADC Treaty and the final and binding dispute resolution forum is the SADC Dispute Resolution Tribunal.

- **Inter-Utility MOU:** SADC passed the SAPP Inter-Utility MOU in December 1994. The MOU established official cooperation among SADC member states for sharing the costs and benefits of energy generation. The document was revised in 2007. The MOU specifies the power pool's operating principles, objectives, and organisational structure, stipulating a system of committees and subcommittees dedicated to aspects of power generation – operations, planning, environmental effects, technical and administrative work – and naming each group's duties, schedule of meetings, and decision-making procedures.
- **The Agreement between Operating Members:** It determines the interaction between the utilities w.r.t operating responsibilities under normal and emergency conditions. This agreement lays down the specific rules of operation and pricing.
- **Operating Guidelines framed in 1996:** These guidelines define the sharing of costs and functional responsibilities for plant O&M, including safety rules and standards and operating procedures.

Recommendation for South Asia

The member countries would commit to the development of regional investment framework through

- Recognising international conventions and treaties in order to safeguard the interests of various stakeholders.
- Institutionalising the dispute resolution mechanism through a transparent, fair, commonly accepted legal framework and clearly defined dispute resolution procedures are an absolute necessity as they govern and affect the existing and future trade relations between two countries.
- Any dispute arising out of the interpretation and/or implementation of the agreements/contracts entered into shall be resolved amicably among the member states.
- If unresolved, the member countries may choose to refer the dispute to the SAARC Arbitration Council. The SAARC Arbitration Rules shall govern the arbitration procedure.

Annexure 2: South Asian Countries (SACs) Electricity Sector Profile

A country-wise profile of the key drivers for the investments in the energy sector in South Asia is provided below.

I. Afghanistan

Afghanistan is rebuilding its energy sector and the country has made providing sustainable energy to its population a focus of its development efforts with support from the international community. Currently, only 43 per cent of the population is estimated to have access to electricity, with average per-capita use of 73 kWh per year. Even this low per-capita level of electricity access conceals a significant urban-rural disparity, as it is estimated that only 23 per cent of supplied electricity reaches rural areas.

Current scenario

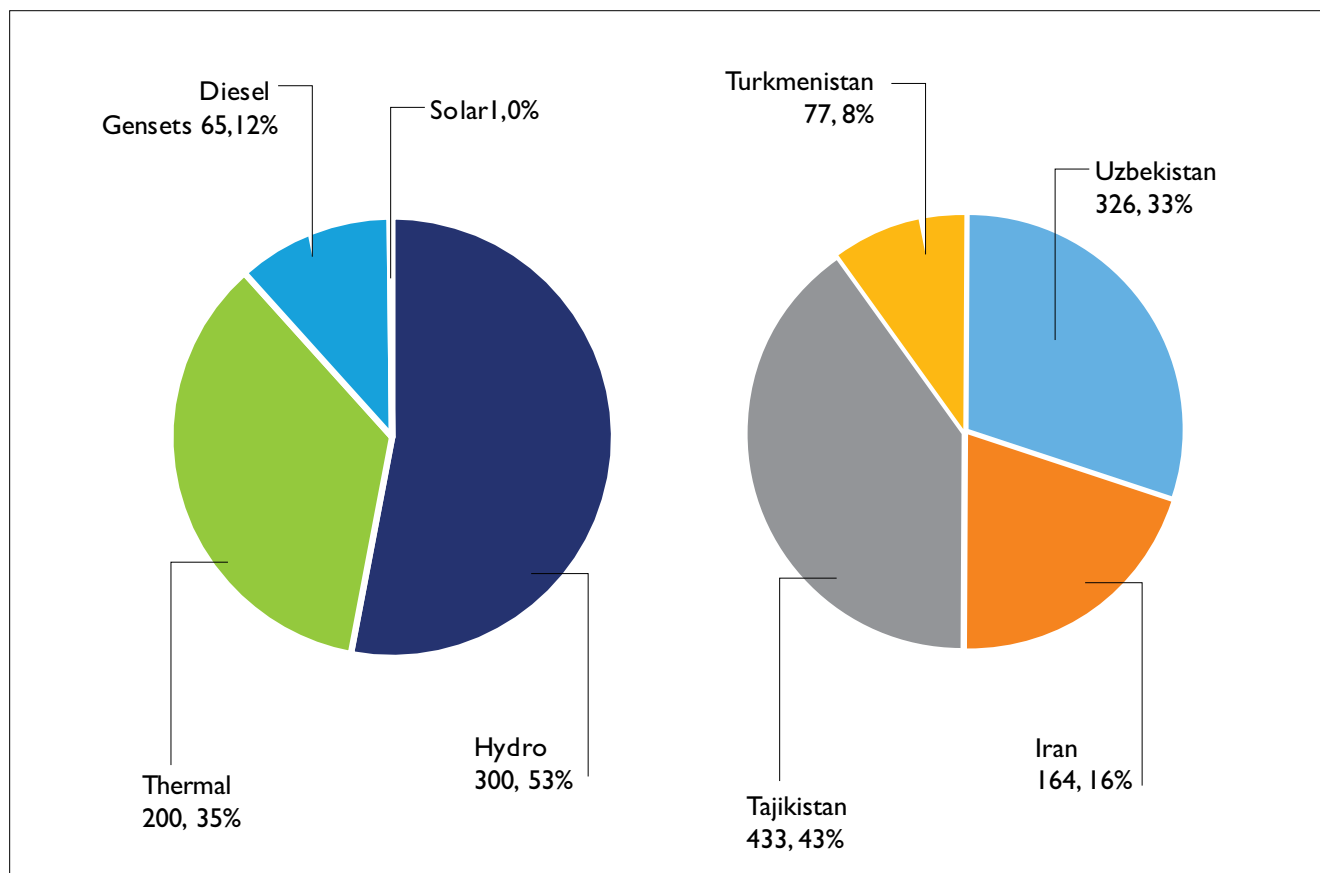
The Afghan energy sector not only suffers from limited power generation capacity but its transmission and distribution systems are out-dated. The rural population is mostly dependent on micro-hydro or PV based solar power projects. The dependence on the traditional biomass (wood and dung) is still very high, at around 85 per cent of primary energy, which adversely impacts the environment. It is supplemented by the use of diesel generators in off-grid areas as well as to compensate for power outages. Lack of access to affordable energy is limiting economic, social and educational opportunities, particularly for the poor and those in rural areas.

Currently, the power sector is governed by the Ministry of Energy and Water (MEW) and operated by Da Afghanistan Breshna Sherkat (DABS), which controls and operates all the activities of the power sector throughout the country. The Afghanistan power system is categorised into four different networks, namely North East Power System, South East Power System, Herat Zone System and Turkmenistan System, which facilitate both internal and cross border interconnections with neighbouring countries like Uzbekistan, Tajikistan, Iran and Turkmenistan.

Energy access is a high development priority for Afghanistan and since 2001 the major focus of efforts has been on reconstruction and expansion of the national electricity grid that would also afford the possibility of power trade with Central and South Asia. The transmission network exists in four distinct areas and integrating them will take time. Still there will be areas, which would not have access to grid electricity by 2020. The total installed capacity and the transmission capacity of regional lines is provided below.

The installed capacity of Afghanistan's power system stands at 566 MW (Figure-18), out of which hydro constitutes 53 per cent, while diesel or HFO based thermal power plants constitutes 35.34 per cent, solar 0.2 per cent and small diesel generator sets constitute 12 per cent. However, due to political instability and conflicts in the last two decades, generation capacity addition has been limited and the majority of electricity consumption (77% of total consumption, i.e. 4,454 GWh) is met through power imports from neighbouring countries.

Afghanistan comprises 10 isolated grids or islands supplied by different power systems through 220 kV and 110 kV links. Different parts of Afghanistan import power from Iran, Tajikistan, Turkmenistan, and Uzbekistan. Currently, there are five transmission lines used for power import from Turkmenistan, Uzbekistan and Tajikistan and three lines for importing power from Iran.

Figure 18 Afghanistan's Installed Capacity and Regional Transmission Capacity

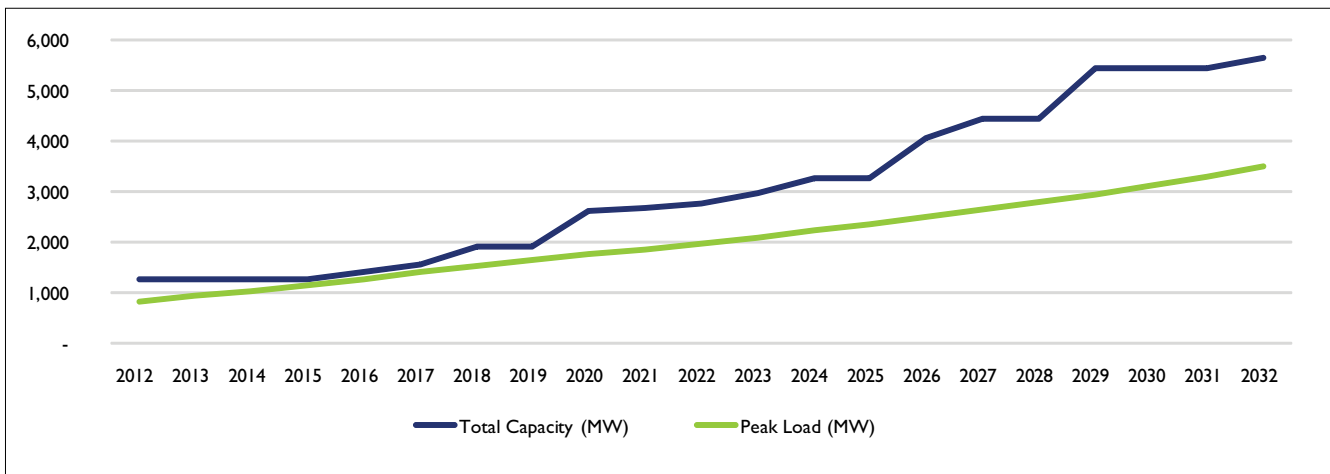
Source: CAREC: Study for Power Sector Financing Road Map; DABS report on Afghanistan Power Sector Overview

Sector Outlook

Afghanistan's energy demand-supply gap at the current levels is around 50 per cent and the same trend is expected to continue till 2020. The reliance on the import of power from neighbouring countries would continue and the country is set to further gain from intra-regional CBET projects like the CASA-1000 Project, which will enable them to get links with Pakistan and will transfer central Asia's hydropower to Pakistan.

According to the Afghanistan Power Sector Master Plan, 2013, the total demand in Afghanistan will increase by 5.7 per cent per annum on average from its current level to 18,400 GWh in 2032. The total peak demand in 2032 is expected to stand at around 3,500 MW. In energy terms, the situation is likely to improve with the commissioning of the CASA interconnection in 2020. The following Figure provides the energy supply scenario for Afghanistan. There is a significant increase in the hydropower capacity after 2022.

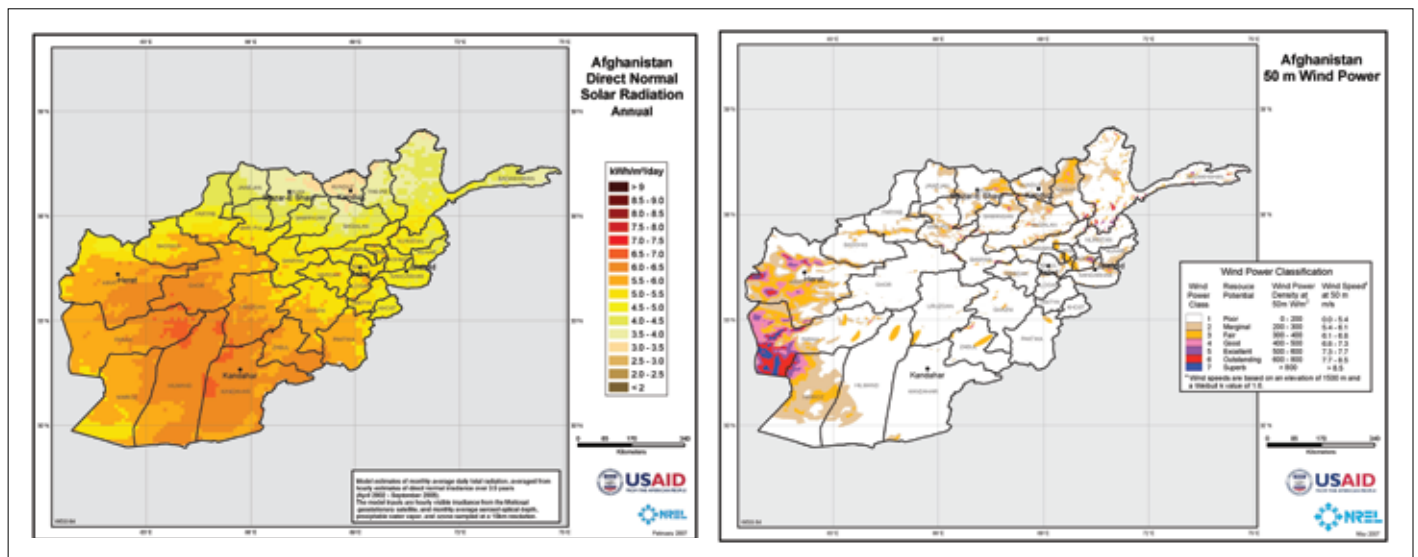
Figure 19 Afghanistan's Energy Supply Scenario



Source: Afghanistan Power Master Plan 2013 (ADB)

Afghanistan has significant renewable energy potential, which can be used for providing power. The National Resource Energy Laboratory (NREL) of the United States (Figure 20) has estimated the technical solar potential in Afghanistan to be over 220 GW and technical wind potential is over 66 GW. Afghanistan also has significant hydroelectric, biomass and geothermal potential, out of which the hydropower potential alone is estimated at 23 GW and 20 GW for the biomass. While hydropower has potential, most of the country's river basins are trans-boundary and require agreements with riparian countries.

Figure 20 NREL Solar PV and Wind Resource Assessment



Source: Afghanistan Power Master Plan 2013 (ADB)

The focus on the development of renewable energy sources will continue and the challenges like lack of sufficient resource data, undeveloped supply chain of the renewable technologies, high cost of implementation and operation, lack of trained personnel, limited availability of private financing etc., need to be addressed.

Investments

Afghanistan's current energy supply-demand gap is around 50 per cent and the same trend is expected to persist up to 2020. Diesel and small hydro are the main type of power generation but a significant amount of power consumption is dependent on imports from Turkmenistan, Uzbekistan, Tajikistan and Iran. There is a need to develop energy infrastructure but the investment requirement is huge.

The Afghan energy sector suffers from low power generation capacity and transmission systems are out-dated, including those in the power suppliers' territory such as Tajikistan. The energy sector in Afghanistan thus requires huge investments for the generation, transmission and system augmentation across all the provinces. It is estimated that an investment of USD 10.1 billion up to 2032 is needed to improve energy access and increase the per capita energy consumption in Afghanistan. A breakup of the investment plan for the key components (generation, transmission and distribution) is provided in the Table-17 below.

Table 17 Afghanistan - Energy Sector Investment Plan

Investment type	Total investments	Stage A (2015)	Stage B (2020)	Stage C (2025)	Stage D (2032)
Generation development	7,330	328	349	982	5,672
Major transmission projects	1,727	595	677	213	242
System augmentation	1,040	290	440	215	95
Total	10,096	1,213	1,465	1,410	6,009

Source: Afghanistan Power Sector Master Plan - 2013

The private sector in Afghanistan is not well developed and the power sector investments are dependent on grants and aid from donor or multilateral funding agencies. The international community remains the major contributor to energy sector development in Afghanistan. Increasingly, those contributions are being channelled through the national budget, under the stewardship of the Ministry of Finance (MoF). The MoF has well-established policies and procedures for energy sector financing absorption and also has a specific provision for 'non-discretionary' financing ensuring that any potential financial support from the funded programmes can be targeted specifically for identified projects.

Afghanistan is set to gain a lot from intra-regional CBET. It is participating in the multilateral power trade in the region by being a party to the CASA-1000 Project (funded by IFC, worth approx. USD 960 million). With this project Afghanistan will be able to transfer power via links with Pakistan and Tajikistan and Kyrgyzstan. Exports constitute around 32 per cent of its total power consumption.

Going forward, Afghanistan has plans to develop the following hydropower projects like Baghdhara (220 MW), Surobi 2 (180 MW), Kajakai 2 (100 MW), Kulcha (to be determined), Kunar (to be determined).

Afghanistan is making an effort to develop its national grid. The first phase of the national grid system is the North East Power System (NEPS). NEPS targets to i) supply power to the Northern, North

Eastern and Southern provinces of Afghanistan and, ii) importing power from Uzbekistan, Tajikistan and Turkmenistan.

Table 18 Afghanistan - Energy Sector Investment Plan

National Grid System Development Plan	
500 kV	Turkmenistan- Mazar-i-Sharif
200 kV	- Haryatan-Kabul, - Tajikistan-pul-i-kumri, - Kunduz-Taluquan, - Kabul-Lugar-Gardez-Khost-Ghazni-Paktita, - Kajakai-Kandhar, - Farah-Herat
110 kV	- Sher khan bandar- Amam sahib - Naghlu- Jalalabad-Mehtarlam - Badghees- Turkmenistan - Sher khan bandar- Quala e Zal

Various funding agencies (ADB, World Bank, KFW, USAID, Islamic Development Bank) and foreign governments (Government of India, Government of Iran, etc.,) have invested a total of USD 846 million in the NEPS 220 kV Hairatan-Kabul transmission line (442 km). NEPS has the following (Table-19) additional power transmission lines.

Table 19 Afghanistan North East Power System-Additional Power Transmission Lines

North East Power System	
Transmission line	- Tajikistan-Pul-i-Kumri 220 kV transmission line (capacity 300 MW) - Turkmenistan-Naibabad 500 kV transmission line (capacity 300 MW)
Sub-station	220/20 kV: Kunduz, Mazar-i-sharif taluqan, Pul-i-kumri, Khulm, Aybak, Doshi, Charikar, Chimtala Gardez, Pul-e-alam, Khost, Gazni and Paktita 110/10 kV: Laghman, Jalalabad, Sar-e-pul, Amam Saheb and Quala-e-Zal

SWOT Analysis

Afghanistan has huge potential of hydro and renewables as per various studies by NREL and it also has supporting demand as only 43 per cent of its population has access to electricity. Further, its interconnection with other countries viz. Turkmenistan, Iran, Uzbekistan and Tajikistan in Central Asia and with Pakistan in South Asia puts it in a sweet spot where it can choose to produce its own power or import/export as per the dynamics of energy prices. Further, CASA-1000 will further strengthen its ties with Tajikistan, Pakistan and Kyrgyzstan.

The MEW controls operation of the state owned enterprises engaged in the power, gas, and petroleum and water sectors. DABS was created in 2008 as part of the strategy to commercialise the power sector and build a new electricity market structure. In the process, DABS replaced DABM to operate

and manage power generation, import, transmission, and distribution infrastructure on a commercial basis throughout Afghanistan.

Afghanistan has been an unstable area in the region and witnessed frequent issues of political instability and acts of terrorism. These issues have resulted in lowering investor confidence. Further, a weak capital market and legal, dispute resolution and contract enforcement mechanism need to be improved in order to place Afghanistan as a preferred investment destination for investors. Afghanistan, being an important energy resource corridor between Central Asian and South Asian countries, acts as the central entity in terms of power trading and has a number of electricity agreements with countries like Uzbekistan, Iran, Tajikistan and Turkmenistan.

Moreover, the capacity of transmission systems is also being increased through the construction and rehabilitation of various transmission lines and substations. For example, with the development of the revised CASA 1000 inter-regional link, Afghanistan will be able to import an additional 300 MW from Tajikistan and Kyrgyz Republic. The following Figure-21 provides the SWOT analysis for the investment scenario in Afghanistan.

Figure 21 Afghanistan – SWOT Analysis

Strengths	Weakness
- Large untapped renewable potential including solar, wind and hydro - Strong interconnections with hydro rich Central Asian countries - Linkage to South Asia through Pakistan - Large FDI proposed, involvement of multi-lateral funding agencies	- Low on skills, technical and financial expertise - Poor legal system and under developed capital markets - Absence of sound regulatory and policy framework
Opportunity	Threats
- Potential to participate in South Asian power market through interconnectivity with Pakistan - Connectivity with Central and South Asia provides Afghanistan the flexibility to access either market and benefit from arbitrage - Huge scope to improve the energy sector parameters like access to energy, per capita consumption	- Political stability is an issue - Growing instability within and of neighbours resulting in a significant security threat - Enforcement of technical standards in case it connects to larger grid systems

Risk Assessment

Afghanistan is considered to have high political risk, and policy and regulatory risks due to an unstable government and therefore the absence of institutions to strengthen policy and regulations as per requirements. Construction risk remains moderate due to the lack of rule of law. Off-taker risk is also moderate due to the lack of integrated operations and no established viability of off taking. Foreign exchange risk is high due to the lack of dollar denominated agreements.

Each sub-sector of power viz. generation, transmission and distribution witnesses moderate to high risk in Afghanistan because of reasons such as lack of options for generation, weak transmission links and low electricity access for the population. Afghanistan has many cross border power trading arrangements.

There will be further strengthening of cross border trade. The following Table represents various risks that developers face in Afghanistan's power sector. The following Figure-22 shows the risk assessment for the electricity sector in Afghanistan.

Figure 22 Afghanistan – Risk Assessment

Risk Factors	Rating	Key Issues
Business Environment		Stability issues with political regime; policy and regulatory frameworks are nascent
Project Construction		Limited application of rule of law in provinces
Off-taker		Lacks integrated operations, viability of off-taker not established
Foreign Exchange		Dollar denominated agreements not evidenced
Operational Risks - Generation		Limited options of generation within country
Operational Risks - Transmission		Weak east-west link which is proposed to be strengthened
Operational Risks - Distribution		Access for population is an issue, Weak regulatory mechanism
Cross border trading		Power transfer capacities with India being augmented both for west and east interconnections, high demand

 Very Low
  Low
  Moderate
  High
  Very High

Current CBET interconnections

The existing 220 kV double circuit import line from Tajikistan is designed for a rating of about 600 MW. Tajikistan will further be providing power to Afghanistan through the CASA-1000 link.

Proposed CBET interconnections

The proposed CASA-1000, covering Afghanistan, Kyrgyz Republic, Pakistan, and Tajikistan will put in place the commercial and institutional arrangements as well as the infrastructure required for 1,300 Mega Watts (MW) of electricity trade. The total project cost as per the World Bank report is estimated at USD 1.17 billion. The CASA-1000 electricity transmission system will help transform the region and signifies an important step toward realising the planned Central Asia-South Asia Regional Electricity Market (CASAREM).

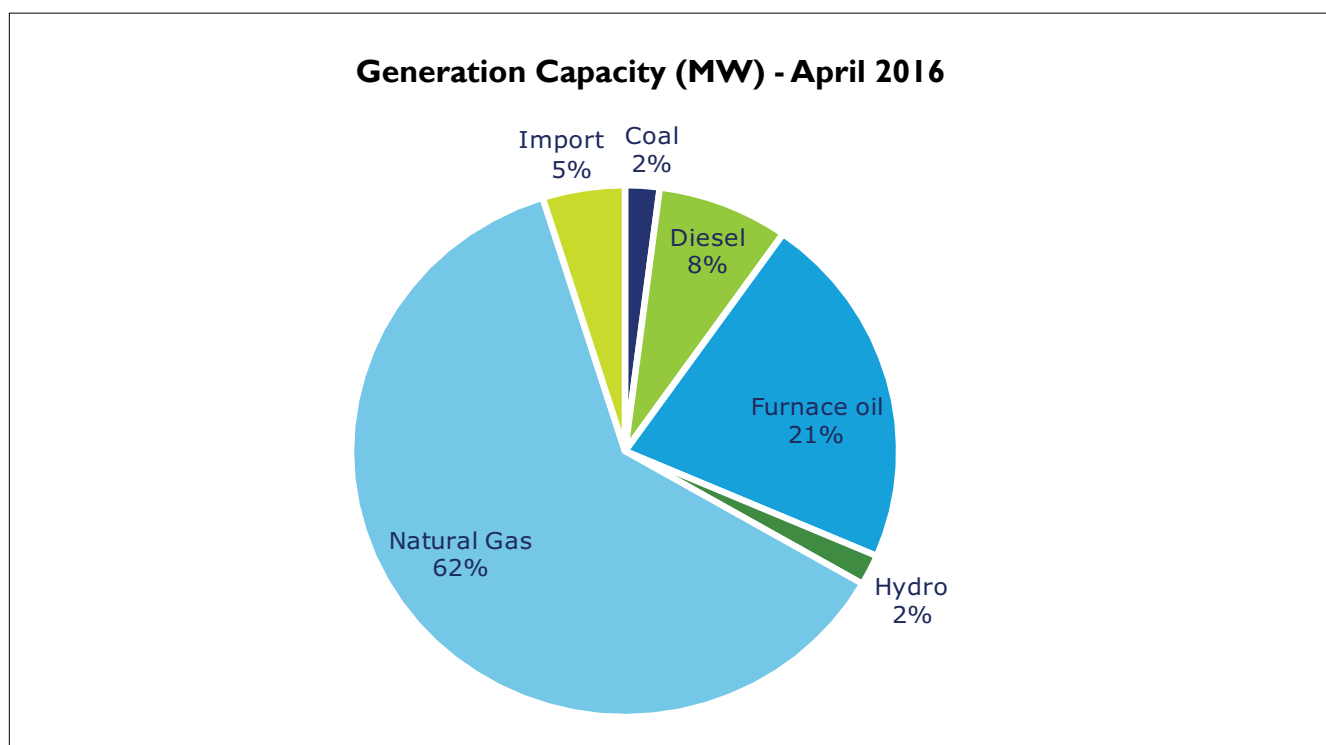
There is a proposal to develop an additional Turkmenistan Interconnection Project in three stages. The first phase is under implementation and involves construction of a 500 kV line from Atamyrat (TKM) to Sheberghan (AFG) via Andkhoy (AFG). This will allow the import of 300 MW on the 220 kV level throughout the year and it is expected to be complete by 2017. The second phase for an additional 200 MW of firm capacity, summing up to 500 MW, by upgrading to 500 kV, including a back-to-back converter at Pul-e-Chomri, would be available in 2020. In the third phase, an additional 500 MW by 2025 is proposed by adding a second back-to-back converter at Pul-e-Chomri.

2. Bangladesh

Current Scenario

Bangladesh is primarily dependent on gas for its power generation. In FY 2009, around 83 per cent of power-installed capacity was gas-based, five per cent was coal based, four per cent was hydro-based and the remaining eight per cent was fuel oil based. With competing demands for gas and constrained supplies, the share of gas-based generation fell to 62 per cent by April 2016 (Figure-23). The contribution of hydro and coal was around two per cent each with five per cent of power supply based on imports from India and the remaining 29 per cent is now fuel oil-based.

Figure 23 Bangladesh - Installed Capacity



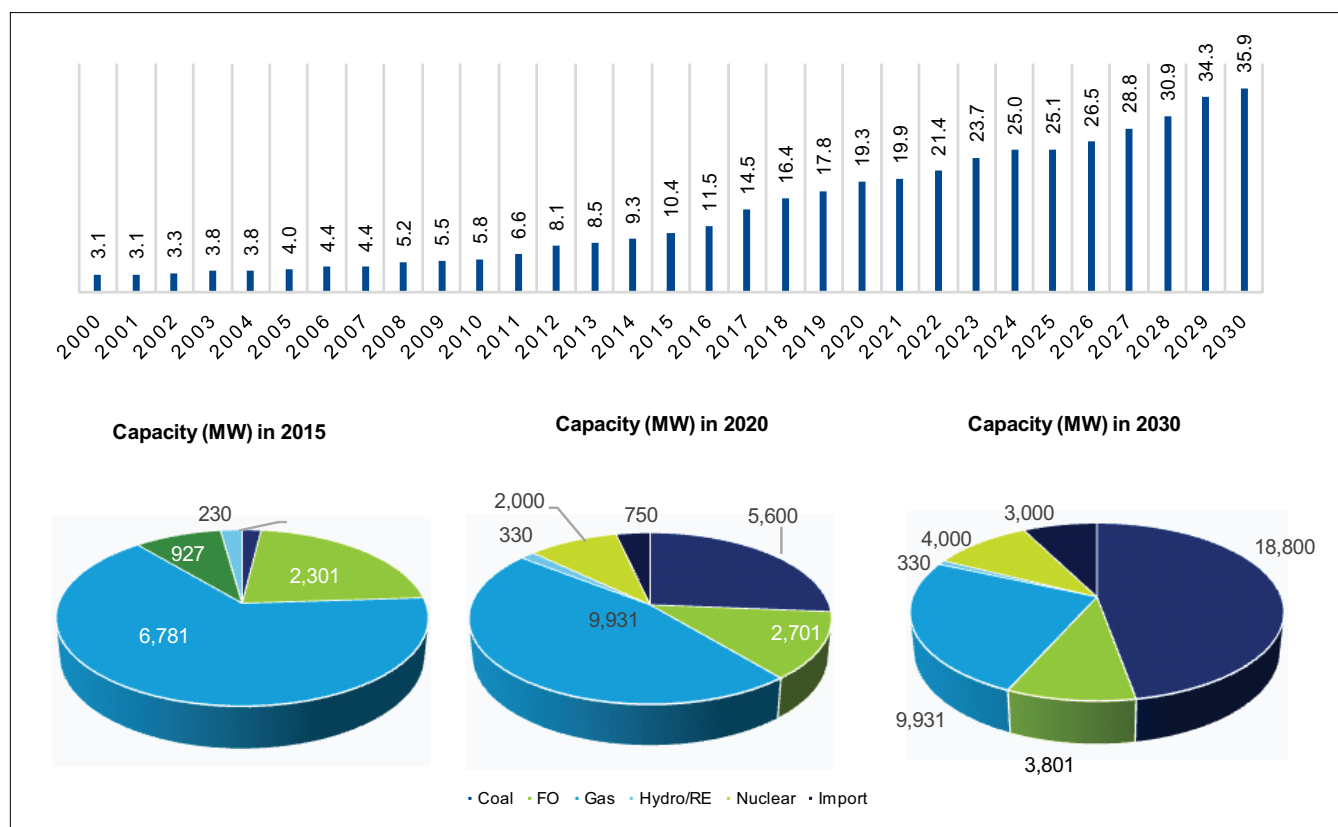
The private sector generation capacity is around 46 per cent and a small part of its requirement is imported from India also.

The power generated from various power plants in Bangladesh is transmitted to the national grid through 400 kV, 230 kV and 132 kV transmission lines.

Sector Outlook

According to the Bangladesh Power System Master Plan (PSMP) 2010, the peak demand of the country is expected to grow at a CAGR of 8.6 per cent from 6.45 GW in 2010 to 33.708 GW in 2030. In order to meet the demand, the installed capacity is envisaged to grow at a CAGR of 9.4 per cent from 5.8 GW in 2010 to 35.2 GW (excluding imports) in 2030. Due to depleting gas reserves, it is targeting the harnessing of thermal power from coal (domestic and imported). It has seen healthy participation of the private and public sector in the power generation sector.

Figure 24 Generation-based Fuel Type



Source: Bangladesh Power Supply Master Plan, 2015

Bangladesh has a huge shortfall in meeting its power demand. Main fuel types are gas and liquid fuel (accounts for more than 90% of total power consumption). Going forward, Bangladesh's target is to increase the percentage of coal in its total energy mix (vision of improving coal base to 53% by 2021). There is decent participation of the private sector in Bangladesh's power market.

Bangladesh has ambitious targets of achieving 38.7 GW by FY 2030 and 22.5 GW by FY 2020 as per its PSMP 2010. The public vs. private installation is around 50 per cent each. A small portion of its requirement is also imported from India.

The electrical grid interconnection between India and Bangladesh is now functional for 500 MW capacity using HVDC back-to-back station. An additional capacity of 500 MW is in the implementation phase. This link will also enable Bangladesh to participate in the Indian power trading market and execute power trades with generation stations in India, Bhutan and Nepal over Indian transmission network. Bangladesh intends to import 2000 MW from the 800 kV bipole HVDC Rangia-Rowta to Barapukuria to Muzaffarpur (Bihar) line, which will be carrying 6500-7000 MW power.

Bangladesh has large reserves of gas and offers an opportunity for investors to explore them. In 2015 the India based Reliance Group signed a deal worth USD three billion with Bangladesh to set up a mega power plant and a floating LNG import terminal in Bangladesh. ONGC, another Indian firm is also operating in Bangladesh for gas exploration. Bangladesh has identified five coalfield sites, which are

expected to have reserves of around 3500 million tonnes. The coal sites with their potential reserves are listed below.

- Jamalganj (1053 million tonnes)
- Dighipara (865 million tonnes)
- Khalashpeer (685 million tonnes)
- Phulbari (572 million tonnes)
- Barapukuria (390 million tonnes)

Investments

The private sector in Bangladesh has been active in the renewable energy sector and has helped increase access of off-grid solutions to commercial and residential customers. The involvement has been through financing mechanisms such as microloans and some generation investment. The Government of Bangladesh has played a substantial role in incentivising private sector participation by creating a commercially viable market for the uptake of RE technology. The most common types of private sector players include: private commercial banks, foreign commercial banks, non-governmental organisations (NGO), and retailers.

During 2014, Bangladesh's power sector attracted FDI of USD 45.48 million or 2.98 per cent of net FDI.

The Government of Bangladesh in April 2016 approved the first phase of the largest and only integrated 750 MW LNG based power project with floating storage and a regasification unit (FSTU) based LNG terminal in Bangladesh, to be built by Reliance Power India. It is to be commissioned by 2018-19 at Meghnaghat, near Dhaka. The total FDI for the project would be around USD 1.3 billion. Land for the power plant at Meghnaghat would be provided by the Bangladesh Power Development Board (BPDB). FSRU based LNG terminal will supply re-gasified LNG (RLNG) for the power project and additional RLNG to PetroBangla.

Bangladesh is a signatory of MIGA Overseas Private Investment Corporation (OPIC) of America and ICSID. MIGA's guarantee protects investors against losses arising from the risks of currency transfer, expropriation and war and civil disturbances. MIGA may only ensure new investment, privatisation and financial restructuring. Bangladesh is a member of the SAARC framework agreement for energy cooperation and has signed a MoU for establishing the BIMSTECH grid interconnection.

SWOT Analysis

Bangladesh has a well-functioning capital market along with sound public private participation to support investment in the energy sector. Due to these factors there has been a significant level of private investment in Bangladesh's power sector. It also has an existing 500 MW link with India, which is to be further augmented to 1000 MW by 2018. It has gas and coal reserves but mostly gas reserves have been used for power production. Its new policy focuses on utilising coal reserves by introducing new coal based thermal capacities. Its per capita consumption is low and low access to electricity puts it in place to harness growth through the development of the power sector. Its FDI policies have also been successful as compared to other countries in the region.

Bangladesh needs to improve on its legal system, contract enforcement mechanism and corruption issues to make private investors more comfortable in making new commitments.

The following Figure-25 provides the SWOT analysis for the investment scenario in Bangladesh.

Figure 25 Bangladesh – SWOT Analysis

Strengths • Power transmission link to India • Healthy private participation • Clear regulatory and policy framework • Well functional capital market • Endowed with coal, oil and gas	Weakness • Slow and weak legal system, no interest for delay in proceedings • Land acquisition is an issue because of dispute over titles
Opportunity • Power deficit • Coal potential (Govt. trying to shift focus from gas to coal) & Renewable potential • Target to increase power generation to 38.7 GW by 2020 • 100 percent foreign ownership, tax holidays and exemptions, reduced import duties	Threats • Political risk • Contract repudiation

Risk Assessment

Bangladesh has relatively low risk in political stability and has a fairly established policy, PPP framework and functional capital market in place. Similarly due to defined environmental, social and R&R policy it has relatively low construction risk. It backs PPA for domestic power off-take by sovereign guarantee but has limited open access in place because of which off-taker risk is moderate. It entertains dollar denominated PPAs with India, thus minimising the risk for investors on the foreign exchange front. It has high risk for generation as its current gas plants are not getting sufficient supply; coal based generation is also on the cards but it is territory, which Bangladesh has not explored much till now. Transmission operation risks are low to moderate, as it needs to improve its with-in country interconnection by strengthening and upgrading. Its population access to electricity needs to improve and weak regulatory mechanisms in the distribution sector pose relatively high risks in distribution operations. It has low risk in cross-border connection as it has been running interconnection with India successfully and plans on augmenting it further.

Figure 26 Bangladesh – Risk Assessment

Risk Factors	Rating	Key Issues
Business Environment		Stable political regime, policy and regulatory framework in place
Project Construction		Defined environmental, social, rehabilitation framework, allows technology transfer and import of equipment
Off-taker		PPAs for domestic off-take with single buyer backed by sovereign guarantees, limited open access
Foreign Exchange		Dollar denominated PPAs with India honored
Operational Risks – Generation		Focus on coal for future but limited reserves, challenges in availability of gas for current plants
Operational Risks – Transmission		Weak east-west link which is proposed to be strengthened
Operational Risks – Distribution		Access for population is an issue, Weak regulatory mechanism
Cross border trading		Power transfer capacities with India being augmented both for west and east interconnections, high demand

Very Low
 Low
 Moderate
 High
 Very High

Current CBET interconnections

The electricity grids of Bangladesh and India are connected through the Bheramara – Baharampur 400 KV back-to-back HVDC link of capacity 500 MW. The interconnection line was commissioned on Oct 5, 2013. Details of the interconnection are given below.

- The Bangladesh side comprises of 27 km of Baharampur (India) – Bheramara (Bangladesh) 400 KV double circuit line, a three km loop-in, loop-out of Ishurdi – Khulna South 230 KV double-circuit line at Bheramara and a 500 MW HVDC back-to-back station and 230 KV switching station at Bheramara.
- The India portion comprises of 71 km of Baharampur (India) – Bheramara (Bangladesh) 400 KV double circuit line, a three km loop-in, loop-out of Farakka – Jeerat 400 KV single circuit line at Baharampur and 400 KV switching station at Baharampur.
- Contractual Arrangements constitute TSAs between the Power Grid Corporation of India Limited (PGCIL), India and BPDB for access through the Indian network, a PPA between BPDB and NTPC Vidyut Vyapar Nigam (NVVN) Ltd., India for the supply of 250 MW power from the central generating stations of the Gol and additional 250 MW power procured by Bangladesh from Indian market on short term basis through Power Trading Corporation (PTC) India Ltd.

In addition, a 100 MW Eastern interconnection from the Indian state of Tripura at Suryamaninagar to South Comilla in Bangladesh through 400 kV transmission line (to be operated initially at 132 kV) in radial mode was commissioned in 2016.

Proposed CBET interconnections

India and Bangladesh are exploring several interconnection proposals to augment the existing transmission capacity for increased power transfer between the two countries. These include:

iv. Augmenting the existing capacity of HVDC link with India

Capacity augmentation of the existing Bheramara HVDC Station by 500 MW; the import of an additional 500 MW of power by Bangladesh from India through the Baharampur (India) – Bheramara (Bangladesh) interconnection. An additional 500 MW HVDC back-to-back converter unit is to be built at Bheramara with related augmentation of transmission lines at both ends. This transmission project construction started in January 2015 and is slated for completion by June 2018.

v. Interconnection with North Eastern states of India

The master plan for evacuation of power from hydro projects in Arunachal Pradesh envisages construction of high capacity HVDC/High Voltage Alternating Current (HVAC) lines from North-Eastern Region to other parts of India. It is proposed that the power from hydro projects in Kameng and Twang basin is to be pooled at Rangia/Rowta pooling station from where, it would be evacuated to the Northern Region. In view of Right of Way (RoW) constraints in the narrow stretch of Indian land between Nepal, Bhutan and Bangladesh (the Siliguri corridor), it is envisaged that the line can possibly be routed through Bangladesh.

3. Bhutan

Current Scenario

Bhutan is rich in hydropower resources, with a potential of over 30,000 MW. The Vision 2020 programme of the Royal Government of Bhutan (RGoB) envisages the development of at least 10,000 MW by the year 2020. While some of this will be used to meet domestic demand, a substantial portion of the power generated will be sold to India, making electricity the country's most important source of export earnings.

Since 1974 Bhutan has had a unique bi-lateral arrangement with India for developing its hydropower resources. With the help of concessional public funding from India this has allowed Bhutan to bring into operation 1,400 MW of new hydropower, which it now owns without having had to raise any equity. Further bi-lateral projects using the same model are at the planning or construction stage. While this approach has been successful, the rate of development has not been fast enough to meet the RGoB's Vision 2020 objectives, consequently it has proved necessary to adopt parallel strategies to promote the development of selected projects through other forms of partnership arrangements involving both public and private entities, and with increasing reliance on private financing. These parallel models are anticipated to be PPPs between foreign and local public entities, and PPPs between Bhutanese public entities and private foreign companies.

Bhutan has made rapid socio-economic progress over the last decade with hydropower being the main engine of growth. Hydropower contributes 99 per cent of the total power requirement and is also exported to India. The development of hydropower in Bhutan is a story of successful bilateral cooperation with India and the evolution of electricity trade between the two countries. The construction of large hydropower projects has been taken up with financing from the GoI through a mixture of grants and loans and the tariffs for hydropower exported to India have been fixed on a cost-plus basis.

Out of an estimated 24 GW of techno-economically feasible hydropower potential, about 1606 MW or 6.6 per cent of the estimated potential has been harnessed so far. The 11th Plan (2013-2018) targets to increase the installed power capacity to 3,446 MW. The country is a net exporter, selling around 75 per cent of its power to India.

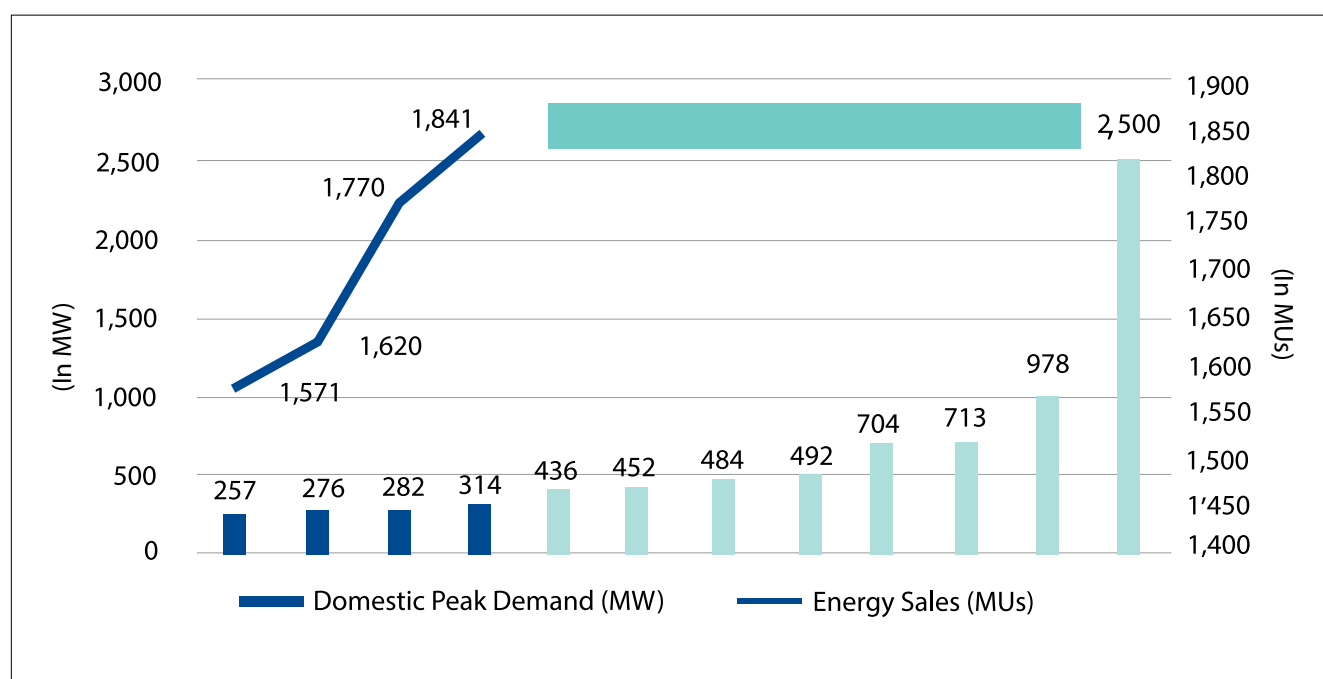
Hydropower has been Bhutan's top export, accounting for more than 30 per cent of overall exports in FY 2014. The government earns revenue from the hydropower sector through dividends and corporate income tax from Druk Green Power Corporation (DGPC) and Bhutan Power Corporation Limited (BPCL).

Sector Outlook

Bhutan and India signed an agreement on cooperation in hydropower in 2006. In March 2009, India agreed to develop 10,000 MW of hydropower capacity in Bhutan for export of surplus power to India by 2020.

The domestic system currently has a deficit in the low flow season and the same is likely to be corrected by 2018. After allowing for free energy (min 12% as per SHDP), the output from future IPP and PPP projects will need to be exported to India. The construction of lines for smaller schemes would be dependent on the bigger schemes. The demand-supply scenario for Bhutan is presented in the next Figure-27.

Figure 27 Bhutan - Domestic Peak Demand



Source: Consultants' Analysis

Bhutan attracted initial foreign investment in the form of grants from GoI. India has supported Bhutan's power sector both financially and with technology. Bhutan is mainly dependent on aid from donor agencies and other governments to realise its full power potential, which is mainly hydro.

The Bhutan Government offers supportive policies (Table-20) for investors to invest in Bhutan but regulatory institutions and capital markets are not strong and need to be streamlined before more investors can rely on its capital market for financing and stability.

Table 20 Bhutan Government's Supportive Policies for Investors to Invest in Bhutan

Entity	Policies	Remarks
Ministry of Economic Affairs	- Foreign Trade Policy - Rules and regulations governing trade with other countries - FDI regulations	- No restriction on electricity export under Umbrella Agreement - Power sector FDI based on Sustainable Hydro Power Policy
Ministry of Finance	- Fiscal/Public finance policies - Budgetary expenditure policy across key areas of development - Accountability of public resources	Minimum budgetary support for power sector
Royal Monetary Authority	- Monetary policy and money management - Currency management - Exchange rate policy and convertibility status	Rupee and Nu are pegged
Bank of Bhutan and Bhutan National Bank	- Banking policies and framework - Prudential norms - Banking services and reach	Sectoral caps and Groups lending caps
Royal Securities Exchange of Bhutan	- Securities market regulations and exchange policies - Existence of governance norms and adequate checks - Trading history and liquidity	No restrictions subject to fulfilment of specific criteria

From an external investor's perspective, having a comprehensive set of ready documents/agreements acceptable to the investor community including foreign lenders can further strengthen the overall investment climate. It is also recommended to have an Infrastructure Enabling Act in place regulating the issues pertaining to infrastructure projects. This has often been observed to facilitate PPP project development in the state/country.

The PPP policy of the State should take into account the interests of the public sector, private sector, democratic control and the interests of the common people. It should be able to balance the interests of all those who have been involved in such projects.

It is very common to have provision in the Concession Agreement to ensure proper usage of the concession in the project, however, it is advisable for the State to develop a mechanism to monitor such things so that the quality of the project is always paramount and the concession shall not be abused resulting in a windfall of undeserved profits for the private players.

A strong and effective Dispute Resolution Board must be set up which not only addresses the issues in a timely manner but also makes recommendations to the government. Such recommendations or the order do not undergo a lengthy process of appeals but attain finality in a short or definite time. The contract agreements shall recognise and contain arbitration clauses, which must include the possibility of international arbitration as the sustenance of the PPP agreement would be on the protection of the interests of the parties.

It is noteworthy that the choice of the PPP options, the industry structure and design of the regulatory mechanism are closely inter-linked. An effective, fair and transparent structure would alleviate risk perception and mitigate the cost of PPP transactions, by securing a level playing field and effective regulation.

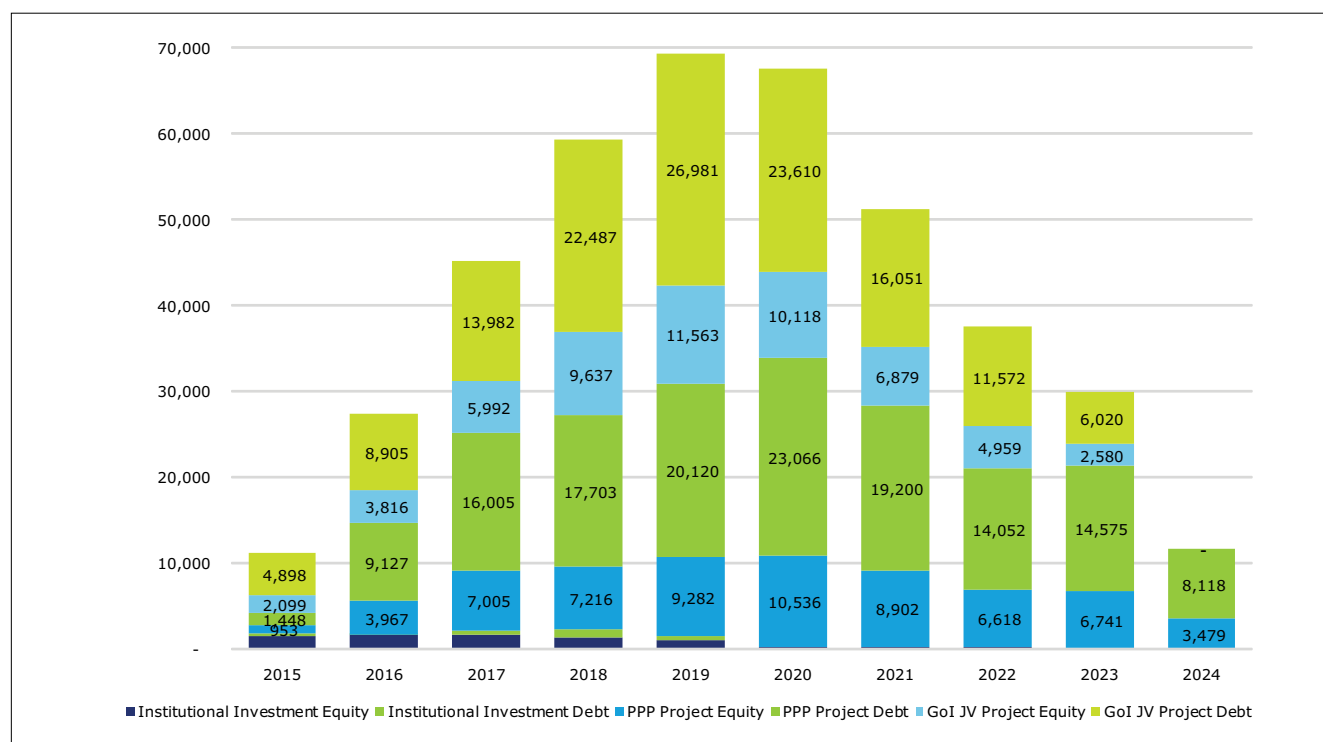
Investments in power sector

The hydropower investment plan comprises of six projects to be set up on an intergovernmental basis, four projects on JV basis and five projects on a PPP basis.

- For the intergovernmental projects, GoI in the form of debt and equity will contribute the entire capital outlay. DGPC will not have any fund raising responsibility for this. It will take over the assets and liabilities from the Project Authority, two years from the commercial date of operation.
- For JV projects, Indian PSUs will contribute 50 per cent of the equity except for Bunakha where DGPC will hold 72.12 per cent based on the downstream benefit to Chukha, Tala and Wangchhu HPPs. The DGPC's equity contribution to these projects will be provided as a grant by the GoI.
- For the PPP projects, the Project Developer would raise both the debt and equity component.
- DGPC will also be responsible for other institutional investments to the tune of Nu 9.30 billion from 2015-19. A key priority for financing hydropower investments is to tap all potential domestic sources.

The graph (Figure-28) indicates that the major portion of the investment would occur in the years 2018 to 2020, the highest being in 2019 amounting to Nu. 69 billion. There is no even distribution in the investment.

Figure 28 Bhutan's Hydropower Investment Plan (in Nu. Million)



Source: Consultants' Analysis

The local banks and funds have shown interest in investing in the nation's most promising business opportunity and a larger contribution from the domestic funds can help reduce overseas borrowings and improve debt sustainability.

SWOT Analysis

Bhutan has immense potential in hydropower and its close ties with a big country like India puts it in a favourable position to export excess power, but it is dependent on private investors and multilateral development agencies to realise that potential. In recent years Bhutan has borrowed large sums and its total debt exceeds its GDP. Most of the debt, though, is for hydropower development and only around 26 per cent of the debt is for the non-hydro sector. Its high leverage provides both an opportunity for growth and the threat of defaulting on the debt if things become unmanageable. Another issue is with its capital market, which is small and does not provide participants the liquidity they would like to have. In order to boost its growth its government has been proactive in passing and implementing a strong Land Act 2007 to smoothen investors' worries about timely land acquisition. Its FDI policy is a bit risky for the investors as the government keeps the right of changing the policy at will, in light of recent political instability this could be a cause of concern for investors.

The following Figure-29 provides the SWOT analysis for the investment scenario in Bhutan.

Figure 29 Bhutan - SWOT Analysis

Strengths	Weakness
- Close ties with Indian developers and G to G support from India for developing hydro projects - Established power transmission corridors - Participation in power market in India - Strong Land Act 2007 under which govt. acquires land for private parties on chargeable basis	- Small and nascent domestic capital market with limited utilisation - Sustainable hydro power policy is not specific on dispute resolution mechanism - Weak domestic power demand
Opportunity	Threats
- Huge untapped hydropower potential with power export opportunities - Bhutan's ambitious target to generate 10 GW hydropower by 2020 - Funding from multilateral funding agencies for development of hydropower	- High dependence on Indian power market for developing hydro resources - High national debt

Risk Assessment

Bhutan has low business environment risk as it has relatively stable policies, government, legal and regulatory policies in place. Construction risk is also low as it is backed by a strong Land Act and defined social, R&R, technology transfer and equipment import policies. Off-taker risk is moderate as it has low demand and most of the power has to be exported to India. It allows for PPA for domestic off-take and cost plus negotiated tariff for export to India. It has tried minimising foreign exchange risk

by pegging its national currency to the Indian currency to correctly reflect the economic situation as most of its economic activities are carried out in Indian currency, which is fairly stable. It has low risk in generation as it has unbundled the Generation Company to clearly identify the economic situation of generation activities in the country thus communicating a clear picture to investors. Its transmission and distribution poses moderate risk because of tough terrain and limited transmission system within the country and limited access in distribution. It has low risk in cross border power trade as it has strong ties with India both politically and in business dealings.

Figure 30 Bhutan – Risk Assessment

Risk Factors	Rating	Key Issues
Business Environment Risk – Political, Legal, Policy, Regulatory		Stable political regime, well articulated policy regime, regulatory framework in place
Construction Risk		Defined environmental, social, rehabilitation framework, allows technology transfer and import of equipment
Off-taker Risk		PPAs for domestic off-take, export allowed to India through cost-plus negotiated tariffs
Foreign Exchange Risk		Bhutanese currency pegged to Indian currency, supply of equipment and sale of power to India
Operational Risks - Generation		Trained manpower, separate company for generation
Operational Risks - Transmission		Limited transmission system within the country
Operational Risks - Distribution		Limited Access, Regulatory mechanism for tariff setting
Cross border trading		- Additions to cross border capacities under implementation - Access to Indian market but not to other countries in the region

Very Low
 Low
 Moderate
 High
 Very High

Current CBET interconnections

The following interconnections between India and Bhutan are currently operational

- Chukha (Bhutan) to Birpara (India): 220kV transmission line
- Kuruchu: Geylegphug (Bhutan) – Salakati (NER – India): 132kV S/C
- Tala (Bhutan) to Siliguri (India): 400kV 2x D/C line

Proposed CBET interconnections

The following interconnections are under implementation

- First of the 3000 MW HVDC terminal being established at Alipurduar along with 6000 MW NER-NR/WR interconnector
- Punatsangchu-I HEP: (Bhutan Portion) Punatsangchu - Lhamoizingkha (Bhutan Border) 400kV 2xD/C; (Indian Portion) : Lhamoizingkha – Alipurduar 400kV D/c (Quad) Jigmeling – Alipurduar 400 kV D/c (quad) line

The present power transfer capacity between Bhutan and India is around 2,500 MW. Expansion of this capacity to serve the future development of hydro projects in Bhutan is being planned and developed, providing jointly for the evacuation of power from future projects in Sikkim and the north eastern region of India.

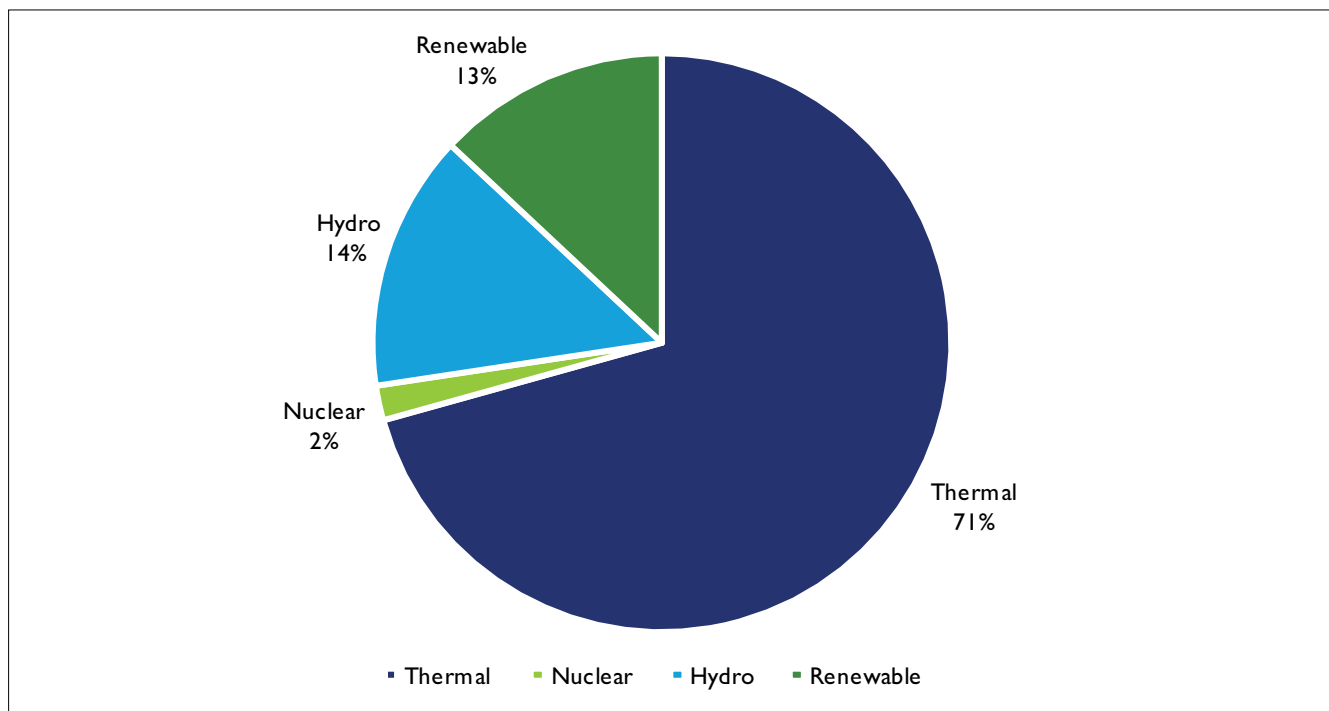
4. India

Current Scenario

India is the fastest growing economy in the world and has been assigned stable/positive outlook by various rating agencies. During the time when the world economy's growth prospects are bleak, the Indian economy offers sound and steady improvement.

India has the world's fifth-largest electricity generation capacity and the demand is expected to surge in the coming years owing to growth in the economy. The total installed capacity of power including renewable sources as on March 2016 was 298 GW. It has thermal as the largest percentage (around two-third and includes gas, liquefied fuel and coal) of power generation and recently renewables are also picking up pace. Presently, out of the total power being generated, 63 per cent is coal based, eight per cent is gas based, hydro contributes for 14 per cent of power, while nuclear production is two per cent and the remaining 13 per cent is collectively produced by renewable energy sources such as small hydro projects, biomass gasifiers, biomass power, urban and industrial waste power and wind energy. The following Figure-31 shows mode wise power generation installed capacity.

Figure 31 Generation by Fuel Type



Source: CEA Reports

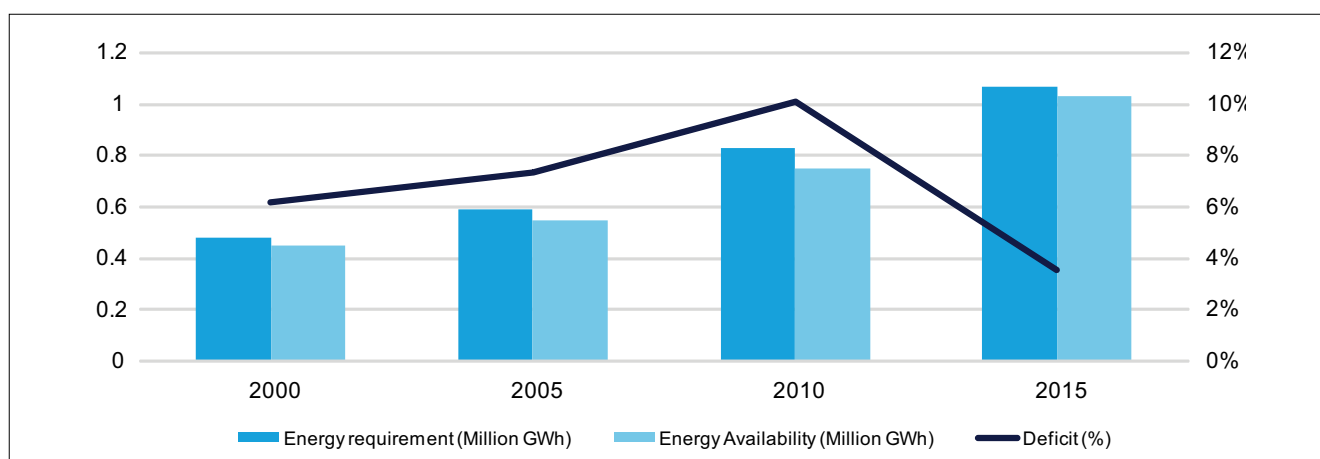
India has an untapped hydro potential worth 142 GW, only 25 per cent of which has been harnessed until now. Similarly, solar power, biomass and wind power too have high potential for future development.

India has a strong role to play in regional power exchange for the two regions. One, its geographic proximity to five countries in the region; two, it has the largest power market and established rules for power trading, which can facilitate power exchange among neighbouring countries.

Sector Outlook

Both energy requirement and energy availability are increasing with time but India is still a net power deficit country. Its per capita consumption is low, compared to the world average, and needs to be improved by the installation of more power generating infrastructure and supporting transmission network. India's energy requirement and deficit over the years is depicted figure-32 below.

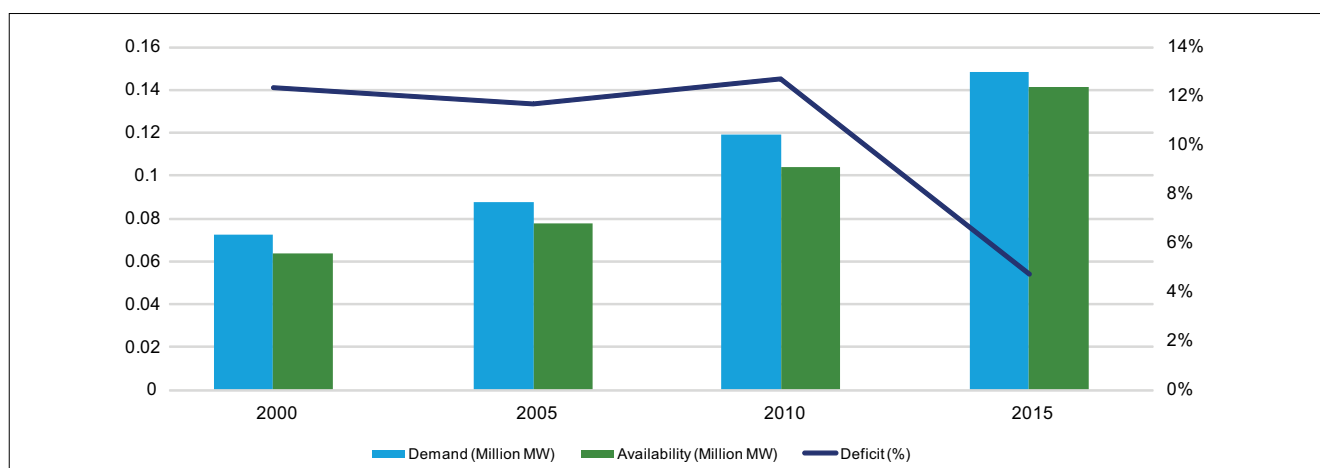
Figure 32 All India Power Supply Position



Source: MoP, GoI

The following Figure-33 represents India's peak demand position and deficit percentage for the last 15 years. India's energy demand has grown to almost double in the last 15 years. Similarly, its energy availability has grown more than twice over the last 15 years. The deficit in peak demand position is declining but it is still significant at a level of around five per cent.

Figure 33 Power Deficit in India in Last 15 Years



Source: MoP, GOI

The GoI has ambitious plans of providing electricity to the entire country by 2019 under the “Power for all” scheme. Another focus area of the government is the renewables. The renewable energy capacity is targeted to reach 175 GW, out of which 100 GW would be from solar energy, 65 GW from wind energy and the remaining from other renewable sources. For meeting the Power for All Project’s power requirement, India needs to have the following estimates of power demand and peak demand.

Figure 34 India’s Power Sector Profile

Parameter	2015-16	2016-17	2017-18	2018-19	2019-20
Consumption growth rate	9.00%	9.00%	9.00%	9.00%	8.00%
Consumption (GWh)	889,532	969,590	1,056,853	1,151,970	1,244,127
T and D loss	19.78%	18.89%	18.20%	17.50%	16.80%
Energy demand (GWh)	1,108,829	1,195,339	1,291,954	1,396,286	1,495,279
Average demand (GW)	126.5	136.4	147.5	159.3	170.7
Consumption growth rate	9.00%	9.00%	9.00%	9.00%	8.00%
Consumption (GWh)	889,532	969,590	1,056,853	1,151,970	1,244,127
Load factor	81.55%	80.74%	79.94%	79.13%	78.32%
Peak Demand (MW)	155.2	169.0	184.5	201.4	217.9

Source: Deloitte Analysis

India has clearly laid out policies for promoting private sector participation in power generation. India has not been able to gain the same level of private sector participation in the transmission and distribution sector. Though, there is some private investment in transmission and distribution at a few locations, at the national level participation remains low. Distribution utilities have large debt levels due to huge losses, subsidies and the inability of customers to pay. India’s regulatory landscape is supportive to the growth of its power sector. Clearly laid out rules and roles of various regulatory bodies provides clarity to developers and addresses the concerns of financiers.

India opened up the power sector to private sector investments in 1991 through amendments to the Electricity Supply Act. The Independent Power Producer (IPP) policy allowed foreign investments in the generation segment but it had limited success due to other factors like the bad financial condition of Electricity Boards, lack of clarity on policy and regulatory instruments, etc. The limited success in the development of generation through the direct FDI route saw the entry of domestic infrastructure players into the power sector. Multi-lateral funding agencies such as ADB, World Bank, KfW have invested regularly in Indian power projects. India is pursuing renewables as its new priority sector, which was underutilised till now. India has been able to address the developer’s and investors’ concerns adequately in the renewable business, thus has more than 90 per cent private player participation in wind and solar power.

Investments

India has both domestic and foreign private player participation in its energy sector. Generation is the biggest beneficiary of private participation as compared to transmission and distribution. GoI has ambitious plans to increase its generation capacity and fuelling renewables based power generation. Till now, there has been significant participation of the private sector in traditional (mainly thermal) and emerging renewables sector. This can be attributed to the GoI’s clear policy stand, understanding

of the generation business in the private sector with clear revenue streams. Nuclear energy is totally state owned and private players are not allowed to own or operate nuclear power. Though, India has technical capabilities and resources to benefit from nuclear power its government has decided not to pursue nuclear power for several reasons. On the other hand, power transmission within the states and inter-state is mainly owned by government organisations. Its transmission and distribution sector struggles with inefficient structures, high T&D losses, inability of customers to pay in some pockets along with subsidisation and political interference. In order to bring more private investment in the transmission and distribution sector, it is necessary to introduce business friendly rules with investment protection and distancing politics from business. Also, due to the of government companies' monopoly in transmission and distribution, at times the private sector is discouraged from entering the market, which is favourable to incumbents due to the learning curve and economies of scale. Distribution utilities have huge debts and the state and central government have made many efforts to improve their debt condition by restructuring and other means. The following Table-21 illustrates the sector wise break-up of investments in the private sector.

Table 21 Investments in the Indian Power Sector

(in USD Billion at 2016 exchange rate)

Investment	Centre Sector	State Sector	Private Sector	Total
Thermal	7.17	8.21	25.50	40.87
Hydro	5.18	1.18	1.02	7.39
Nuclear	3.92			3.92
Biomass				1.55
Small Hydro Projects				1.18
Solar				7.28
Wind				9.90
Captive Projects			9.57	9.57
Modernization of Plants	2.92	1.77		4.70
Transmission	14.73	8.10	3.68	26.51
Distribution	7.10	35.07	2.94	45.11
Energy Efficiency	1.10			1.10
Human Resources	0.61			0.61
R&D	0.61			0.61
Advance for 13 th Plan (2017-22)	24.36	2.27	13.52	40.15
Total Investment proposed	202.18			

Source: Niti Aayog (Planning Commission)

India has received FDI investments of around USD 278 billion across all sectors since 2000. The equity inflow through the FDI route during the period April 2000 to June 2015 has been USD 9.8 billion for the power sector and USD 4 billion for the electrical equipment segment. The figure for non-conventional energy segment stands at USD 3.7 billion for the corresponding period.

SWOT Analysis

India has the largest power market in South Asia and has an important role to play in order to establish the South Asian regional power market. It has sound regulatory policies and frameworks in place

with a vibrant capital market. It has a variety of fuels available and is emphasising on renewable energy (particularly solar and wind). Its Land Acquisition Laws are slightly problematic, however the government is making an effort to streamline the process by introducing a new Land Bill. It has sound legal, contract enforcement mechanisms but there have been instances of retrospective taxation and irregularities in coal block allocation, which could adversely impact investors' confidence. Its FDI policies are sound and have been able to attract sufficient investors. However, the distribution side needs to be improved, which is characterised by huge debt and immense T&D losses. The following Figure provides the SWOT analysis (fig-35) for the investment scenario in India.

Figure 35 India – SWOT Analysis

Strengths	Weakness
• Largest and most well established market in South Asia • Established regulatory and policy framework with strong legal and dispute resolution mechanisms • Well functioning and deep capital market • Endowed with all type of fuels particularly coal, hydro and oil	• Land acquisition, environment clearances for new projects could be time consuming • Continuing high T&D losses • Policy changes like retrospective taxation have created uncertainty • Legal system sound but cases can be protracted
Opportunity	Threats
• Ambitious targets for renewables and conventional power projects backed by strong domestic demand • 100% FDI in power sector except power trading and petroleum refining limited to 49% • Private sector participation in generation, transmission and distribution segments	• Financial viability of distribution sector and the unsustainable level of debt can put the system at risk • Demand may not pick up in states due to regulatory control • Monopoly of state and central corporations in transmission and distribution sectors

Risk Assessment

India has very low risk business environment. It has a sound democratic political structure in place with established legal, policy and regulatory regimes. Construction is low in India because of a few issues related to land acquisition and environment policies. Its off-taker risk is moderate because of financial issues in distribution companies, which are struggling with huge debts. India's foreign exchange risk is low because of open FDI policies and easy conversion of Indian rupee to USD/Euro and GBP.

Among operational risks in generation, transmission and distribution it has low risk in transmission due to a strong national grid and recent private participation through competitive bidding. Its generation sector remains moderately risky as it is mostly dependent on coal and there have been issues with the coal supply due to various legal and supply-chain issues, though the import of coal is allowed. Distribution is the worst performing among these three sub-segments because of highly subsidised tariffs and political interference in distribution.

India is key to establishing the South Asian power market and it already has connectivity with Bhutan, Nepal and Bangladesh. Efforts are being made to bring Sri Lanka and Pakistan on board as well.

Figure 36 India – Risk Assessment

Risk Factors	Rating	Key Issues
Business Environment		Stable political regime, well established policy and regulatory framework, strong legal framework
Project Construction		Land acquisition is a challenge, legal cases on account of environmental, social, rehabilitation issues takes time,
Off-taker		PPAs for domestic off-take with utilities, financial viability of Discoms is a concern, full transmission open access
Foreign Exchange		FDI allowed, convertibility of rupee is not an issue
Operational Risks – Generation		Coal linkages is an issue, import of coal is allowed
Operational Risks – Transmission		Strong national grid, private participation through competitive bidding
Operational Risks – Distribution		Regulatory mechanism in place but tariffs are not cost reflective
Cross border trading		Connectivity with Bhutan, Bangladesh, Nepal; power trading on bilateral basis

Very Low
 Low
 Moderate
 High
 Very High

Current CBET interconnections

India has the maximum number of cross-border interconnections in the region. It already has a functional link with Bangladesh and links with Nepal and Bhutan are under implementation. It is connected to Nepal and Bhutan through AC links and with Bangladesh through the HVDC link. India also has proposals to connect with Pakistan and Sri Lanka in the South Asia region but these proposals did not take off due to political and monetary issues.

India-Bangladesh

The electricity grids of Bangladesh and India are connected through the Baharampur – Bheramara 400 kV back-to-back High HVDC link with a capacity of 500 MW. The interconnection line was commissioned on Oct 5, 2013. Through this interconnection, Bangladesh imports approximately 500 MW of power from India. PGCB awarded another 500 MW transmission link contract to SIEMENS on 16th June 2016, which is funded by ADB and scheduled to be completed by 2018. With this block in place, the power transmission capacity between India and Bangladesh would increase to 1000 MW.

There is a proposed enhancement of interconnection transmission capacity between India and Bangladesh, from the existing 500 MW to more than 2,000 MW. This would facilitate the integration of Bangladesh's power system with other countries in the region. The augmentation of transmission capacity would not only increase the volumes of power trade, it would also facilitate trading with Nepal and Bhutan, two countries with which the Indian grid is already interconnected.

India-Nepal

Nepal imports approximately 150 MW of power from India and this accounted for nearly 23 per cent of the annual electricity supply of Nepal in 2013-14. The power exchange still takes place on radial mode between NEA and utilities on the Indian side. Nepal receives power in three modes.

- River Treaty: Koshi Treaty, Gandak Treaty and Mahakali Treaty
- Border Town Exchange Programme
- Commercial Power trading with PTC India during dry seasons

Most of the power supply is through the State of Bihar. There were 21 interconnections for power exchange through 11kV, 33kV, and 132kV transmission lines. Out of these interconnections, some 11 kV and 33kV lines are not being utilised and have been discontinued.

India-Bhutan

Generally in Bhutan, whenever a new hydropower project is designed, its associated transmission system to the desired load centre is also incorporated. Currently power transmission from Bhutan to India takes place through three transmission arrangements from its hydro plants, Chukha (220 kV), Kurichhu (132 kV) and Tala (400 kV).

India-Sri Lanka

An India- Sri Lanka link has been proposed through a HVDC line with submarine cables connecting the State of Tamil Nadu in India with Mannar in Sri Lanka. The feasibility study has been completed.

Proposed CBET interconnections

The following Table-22 summarises India's electricity links within the region:

Table 22 India Specific CBET Projects

S No	Countries	Details	Capacity (MW)	Status
1	Bhutan-India	Grid reinforcement to evacuate power from Punatsangchhu I and II	Reinforcement of 2,100 MW	Under implementation
2	Nepal-India	Dhalkebar - Muzaffarpur 400kV line	1,000 MW	Completed, to be strengthened
3	Sri Lanka-India	400kV, 127 km HVDC line with submarine cable	500 MW in the short term	Planning stage
4	Bangladesh-India	400kV HVDC back-to-back asynchronous link	500 MW in Block-II	Expected to be completed in 2018
5	India-Pakistan	220kV in the short term (could be upgraded to 400kV later)	250-500 MW	Yet to be formally discussed

5. Maldives

The Republic of Maldives is made up of 26 natural atolls stretching 115,300 km² North to South across the equator. Given its geographic structure, the country has a fragmented electricity sector with most islands electrified with their own diesel powered mini grid systems, i.e. around 100 MW diesel generation capacity on the inhabited islands and another 100 MW on the tourist islands ensuring 100 per cent access to electricity. The sector is dominated by high electricity prices and government subsidies on account of fuel imports for electricity generation. Maldives' economic growth has been mainly powered by tourism. Many international resort operators own and operate resort islands in Maldives and tourism will likely remain the engine of the economy. Maldives will remain a small market with limited investment and business opportunities for overseas companies. Although trade and investment have been liberalised, the Maldivian business community is small and close-knit, so new market entrants may find it difficult to make contacts.

Current Scenario

Dependency on imported fuel in Maldives has been increasing, with petroleum imports accounting for around 30 per cent of the total imports in 2013. Of which, the share of diesel in the import bill of 2013 (Jan-Oct) is around 60 per cent of the petroleum imports. In 2012, Maldives imported 337,531 MT of diesel i.e. 70 per cent of fuel import and other fuels namely 93,865 MT of jet fuel, 38,008 MT of petrol, and 10,919 MT of LPG. Since, the electricity generation sector accounts for maximum consumption of fuel, energy security in Maldives becomes of prime concern. Hence, with Maldives' 100 per cent diesel dependency, not only does the country face the challenge of energy security and threat of increasing carbon emissions per unit of electricity but it also is vulnerable to external fuel price shocks.

Sector Outlook

Tourist resorts consume about 60 per cent of electricity used in Maldives. Almost all the electricity is provided by diesel generators. There is scope to provide renewable sources such as solar, wind, and biomass for energy needs. Studies have revealed a good potential for wind energy based power generation, with some pilot projects underway Maldives has announced its objective of being the first carbon-neutral nation by 2020, which would provide extensive opportunities for renewable power suppliers. The energy sector strategy for Maldives is guided by the 2010 National Energy Policy and Strategy and centred on the following strategic objectives.

- Create an enabling environment for the growth of a reliable and sustainable energy sector and meet the government's Constitutional obligation in the provision of electricity to every inhabited island at reasonable standards commensurate to the island;
- Reduce over reliance of the energy sector and the national economy on fossil fuels through the diversification of energy supplies;
- Improve energy efficiency and conservation of energy use;
- Encourage the adoption of low-carbon technologies in the production, distribution and energy consumption through promotion of a healthy lifestyle;
- Exploit local energy resources and renewable technologies; and
- Engage private sector participation in the development of the energy sector, energy services and quality assurance mechanisms.

Maldives is exploring the potential of renewables and targets to reduce the carbon footprint as much as possible. Maldives plans to reduce its carbon footprint by 50 per cent by 2020 as per its Maldives Strategic Action Plan "Our carbon neutral policy envisages a switch from fossil fuel to RE by 2020 with planned 50 per cent reduction in electricity generation by fuel by 2015." The World Bank funded its renewable energy project targeted at installing 26 MW power with USD 138 million in 2012.

Putting Maldives in the cross-border power trade framework is difficult because of its geographical separation from other SACs. Interconnecting power generation within the island itself is an issue as there are multiple small islands.

Investments

The Maldives power sector initiative takes into consideration the unique geographical and demographical characteristics of the Maldives, with a densely populated greater Male' region surrounded by a large number of outer islands differing in size and population. Due to the inherent challenges associated with small populations, remoteness and high transaction costs for project development and implementation, the interventions are designed and packaged in such a way so as to address these challenges:

- **Accelerating Sustainable Private Investments in Renewable Energy Programme (ASPIRE):** All projects under this programme will be based on a FIT with the use of appropriate World Bank Group guarantee instruments as a risk mitigation tool for leveraging private investments. It will also target a number of Waste to Energy (WTE) initiatives. This programme consists of greater Male' region solar PV, solar PV/wind for 30 medium and large electricity consuming islands, and WTE for outer islands. The World Bank Group has been identified as the lead agency.
- **Preparing Outer Islands for Sustainable Energy Development Programme (POISED):** Electricity generation from solar PV, and wind in some locations, is less expensive than energy generation from diesel based on avoided cost of fuel. This programme will support achieving full RE systems on 10 small electricity consuming islands and make the power systems ready to accept a 20-30 per cent share of intermittent RE on 15 large and medium electricity consuming islands through rehabilitating inefficient generators and other necessary adjustments. The ADB will be the lead agency.
- **Waste-to-Energy (Thilafushi) Programme:** The programme will provide an up to four MW WTE power generation facility to replace the existing diesel-based power generator on the island. It is part of the broader government's National Solid Waste Management Policy adopted in 2008. IFC/PSOD supports the development of an integrated waste management project for the Male' catchment area as a PPP.

SWOT Analysis

Maldives has high paying capacity customers and has policies supporting foreign investments. There have been recent political issues, which jeopardized the existing foreign investment in the country. A poor legal system and weak dispute resolution is a cause of concern for investors. It does not have huge traditional power generation capacities and depends mostly on imported fuel. Its location does not support power links with South Asian countries; even connecting dispersed markets is an issue. Its new focus is on distributed renewables.

The following Figure-37 provides the SWOT analysis for the investment scenario in Maldives.

Figure 37 Maldives – SWOT Analysis

Strengths	Weakness
• Strong renewable focus and available potential • Legal system supports foreign investments and guarantees the security of investments • World Bank Group and ADB are fully supportive of the power sector initiatives • Paying capacity of customers	• Poor legal system and weak dispute resolution system • Small and geographically dispersed market, not suitable for traditional power generation • Don't have any type of fuel (traditional) • Not feasible to connect with South Asian power market
Opportunity	Threats
• Ambitious targets for renewables to achieve carbon neutrality • Inter-connection between islands in Greater Male Region being evaluated	• High political risk • Threat of contract repudiation and nationalisation of assets are real • Maldives has no laws pertaining to arbitration. Judgments of foreign courts are generally accepted and enforced by local courts

Risk Assessment

Maldives has high political risks as evident by the recent cases where new government cancelled contracts signed by the earlier government. Its legal system is also poor. It has moderate construction risk as its land related rules have been changed by the new government. Off-taker risk is high as Maldives has a small and geographically dispersed market. Foreign exchange risk is moderate due to the small size of the economy and over-dependence on tourism. Due to its small economic size its capacity to absorb external shocks is low. Most of the generation is through imported fuel thus low risk while transmission does not have much scope to offer therefore moderate risk. Distribution is also low risk because of good paying capacity of customers and same place generation. Cross-border trade would remain an issue as there is no economic viability to connect it with the South Asian Power market and connecting islands within the country is a challenging task.

Figure 38 Maldives – Risk Assessment

Risk Factors	Rating	Key Issues
Business Environment Risk		High Political Risk, Poor legal system
Project Construction		Limited local resources, Regular changes in the policies
Off-taker		Small and geographically dispersed market
Foreign Exchange		Small economy dependent on tourism and vulnerable to shock
Operational Risks – Generation		Limited avenues for sale to other utilities, consumers
Operational Risks – Transmission		Short line lengths
Operational Risks – Distribution		Same place generation and consumption
Cross border trading		Not possible due to isolated location

Very Low
 Low
 Moderate
 High
 Very High

CBET Interconnections

Putting Maldives in the cross-border power trade framework is not possible because of its geographical separation from other SACs. Interconnecting power generation within the island itself is an issue as there are many small islands.

6. Nepal

Water is an important natural resource of Nepal, which represents a source of potential wealth. Nepal's commercially exploitable hydropower generating potential is estimated to be about 42 GW from 66 hydropower project sites. Except for some lignite deposits, Nepal has no known oil, gas or coal deposits. All commercial fossil fuels (mainly oil and coal) are either imported from India or from international markets routed through India. The majority of the power generated in the country is

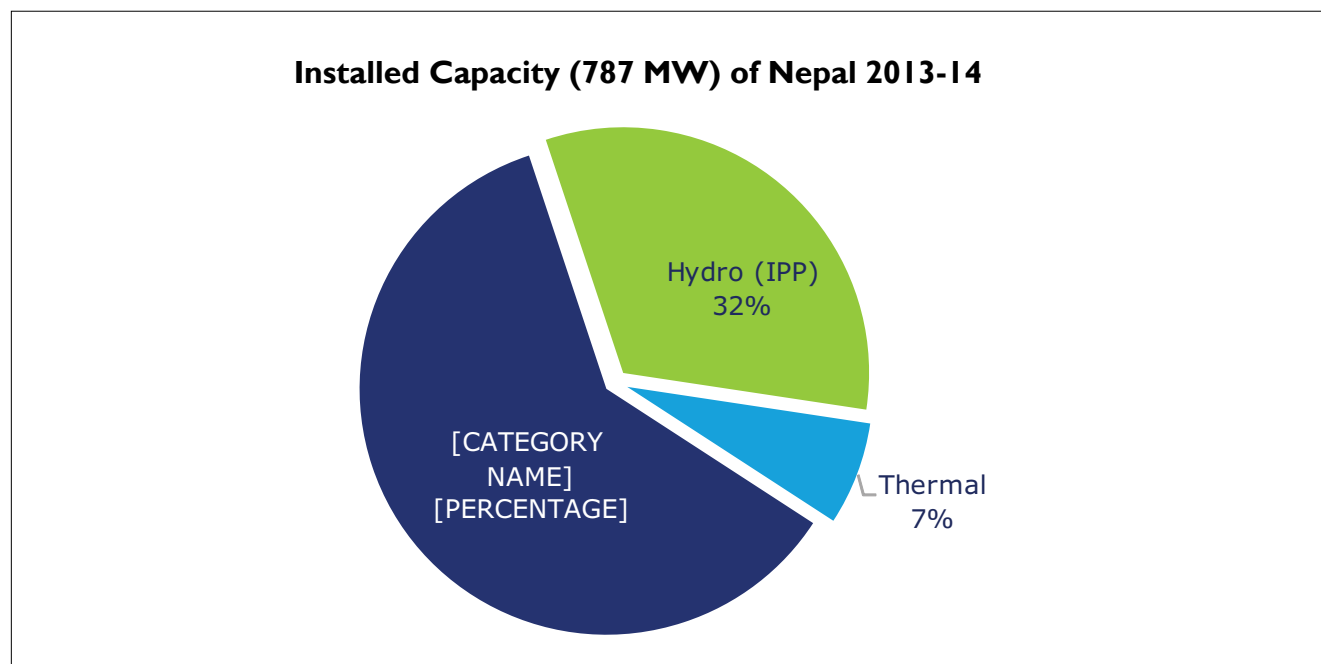
through hydropower generation and significantly based on run of river type of assets with winter capacities reducing to nearly one-third of nameplate capacities. These generation projects are mainly located in the northern hilly regions, whereas the load areas are in the plains in the south of the country.

Current Scenario

The present installed capacity (Figure-39) of the country is 787 MW (NEA owned and IPP). The power system in Nepal is dominated by hydropower, which contributes about 93 per cent of the system and multi fuel plants meet the balance. Until 1990, hydropower development was under the Nepal Electricity Authority (NEA). However, with the enactment of the new Hydropower Development Policy 1992, the sector was opened to the private sector. Private developers have already built a number of projects. Private power producers contribute 256 MW of power to the 'Integrated Nepal Power System'. However the bulk of the economically feasible generation capacity (~98%) from the hydropower has not been realised yet.

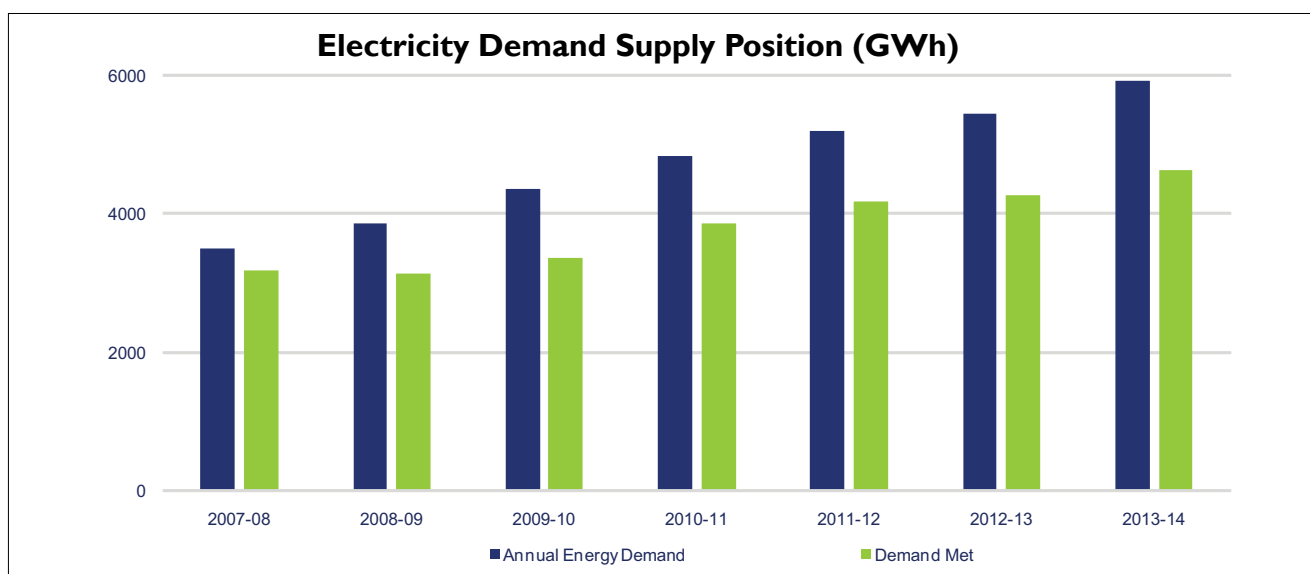
Overall, the electricity demand has far outgrown the supply, leading to heavy load shedding and imports from India. The present installed generation capacity of Nepal is about 787 MW whereas the peak demand is around 1200 MW. Nepal has a deficit of about 440 MW because of non-availability of

Figure 39 Nepal – Capacity



Source: NEA Annual Report 2013-14

generation. Nepal's installed electricity generating capacity comprises mostly of run-of-river hydropower generation plants. The electricity demand peaks during the dry season, when generation is the lowest. On the contrary, generation is the highest in summer when demand is low.

Figure 40 Power Demand-Supply Position

Source: NEA Annual Report

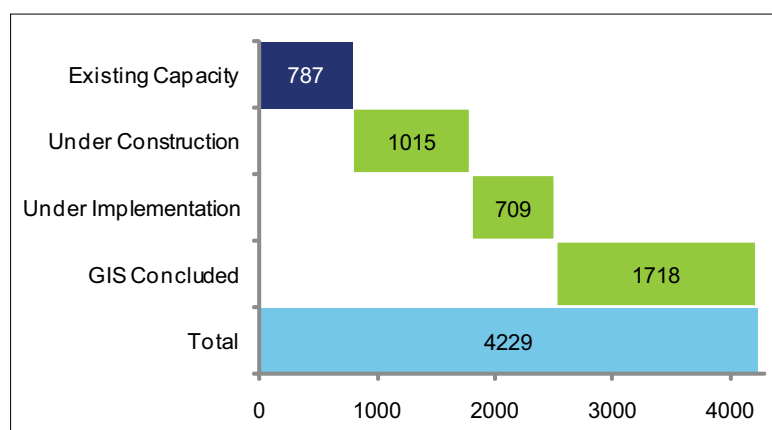
The annual energy demand of Nepal has grown at a CAGR of nine per cent during FY 2008 to FY 2014. However the CAGR of domestic electricity generation has only been 4.3 per cent during that period. This can be mainly attributed to the increasing demand, low rainfall, no significant capacity addition and poor utilisation of available resources.

The total electricity generated in Nepal is not sufficient to meet the demand. The demand – supply gap is partly mitigated by importing power to the tune of 150-170 MW from India and the rest through load shedding, which is around 12-14 hours in most parts of the country. Imports from India have risen at a CAGR of around ~17% between FY 2009 to FY 2014.

Sector outlook

The rising gap between electricity demand and domestic supply has resulted in a demand curtailment of close to 1278 million kWh during FY 2014. In addition to creating difficulties for the general population, the power shortage has an adverse impact on the industrial and commercial sectors. This has also led to a dramatic increase in the use of diesel fuel based electricity generation, with a consequent increase in consumption of diesel and added fiscal pressure on government finances. The expected generation is slated to increase to 1,452 MW during dry peak period of 2017-18

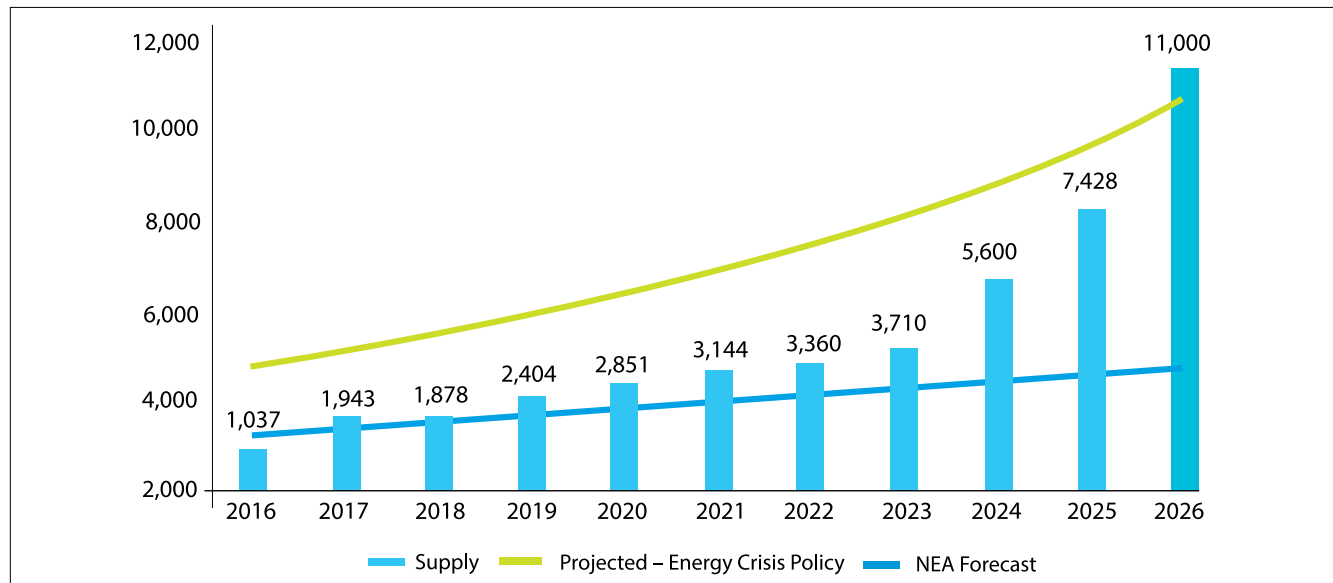
and 1,864 MW during wet peak period of the same year. This will result in a surplus of around 116 MW during the wet peak period and about 1000 MW during the wet off-peak period of 2017-18.

Figure 41 Nepal's Generation Expansion Plan

Source: EDF Master Plan Study document

The recently announced Energy Crisis Policy has targeted the development of 10,000 MW of hydropower capacity by 2026 to achieve self-sufficiency round the year as well as to provide surplus for export to neighbouring countries (Figure 42).

Figure 42 Nepal's Demand Supply Forecast (In MW)



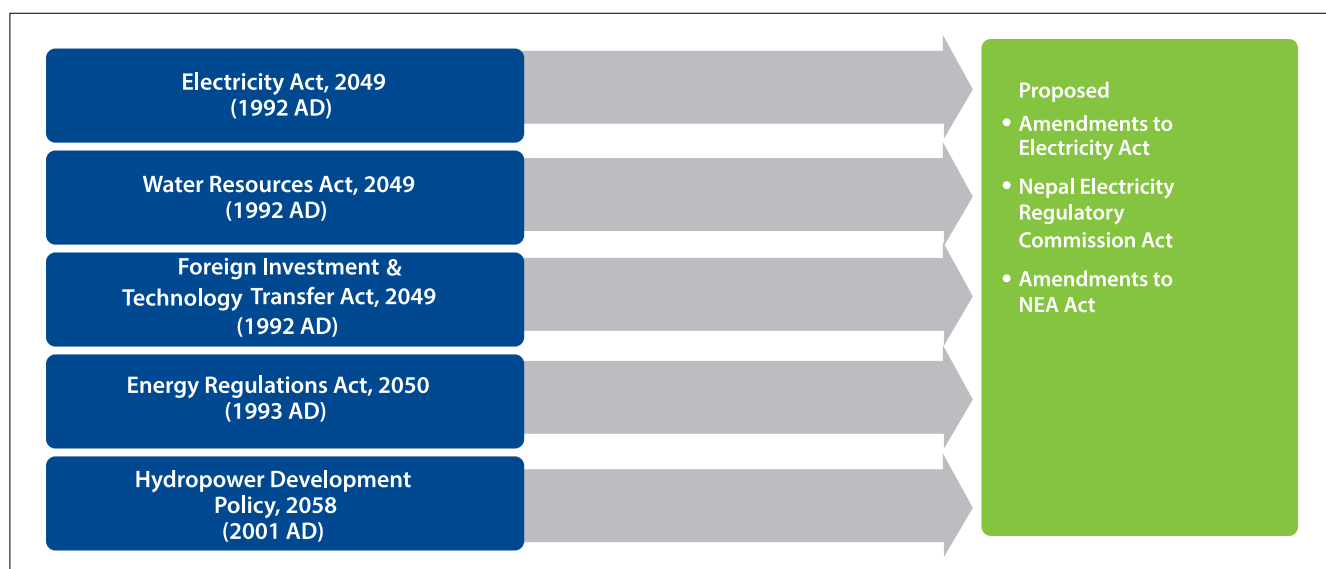
Source: Energy Crisis Policy, 2016

Investments

The legislative framework for the IPPs in hydropower was enacted in 1992-93 but it was not until 1997 that the small domestic hydro projects could be initiated. Despite several MOUs/ licenses being granted since early 2000s, there has not been much progress on the large hydropower projects. In 2006, the Government of Nepal invited competitive bids for concessions on two export-oriented projects – Upper Karnali (900 MW) and Arun III (900 MW). The Letters of Intent for these projects could be issued to the winners only in 2014.

In 2012, Government of Nepal transferred the responsibility for negotiating concessions from MOE to the Investment Board of Nepal (IBN), which reports directly to the Prime Minister. IBN has taken the lead in mobilising resources to finalise the bankable Concession Agreements or PDAs for the two projects that were signed, which is also being used as a template for negotiating all future export oriented hydropower projects.

The signing of the PTA between India and Nepal on 21st Oct 2014 has been an important landmark in the Nepalese power sector, allowing cooperation including developing transmission interconnections, power-exchanges and trading between the two countries. It also encourages and facilitates investments in the power sector; cooperation on the various aspects of policy harmonisation for the realisation of cross-border interconnections, grid connectivity and power trade; removing barriers, including tariff, levies, fees, taxes, duties or charges; allowing the authorised/licensed electricity producers/buyers/traders of each country to engage in CBET, including that through power exchanges, and to seek cross-border transmission access as per the laws of the respective countries. The implementation of this agreement would require significant structural and institutional changes in the power sector in Nepal to create an enabling environment.

Figure 43 Key Policy Initiatives in Nepal's Power Sector

Nepal needs foreign capital to take advantage of its existing resources and promote growth in the economy. While foreign aid is one option, foreign investment brings better outcomes. Nepal went on the path of liberalisation in the early 1990s with the promulgation of the Foreign Investment and Technology Transfer Act (FITTA), 1992, which aimed at encouraging FDI in the country. At the policy level, the act is liberal and open with a limited negative list. It has opened more sectors of the Nepalese economy for foreign investment with the guarantee of non-nationalisation, repatriation of profits, option of share transfer and dividend sharing. It has provisions for compensation to those investors whose investments suffer losses due to war, armed conflict and a state of national emergency. The FITTA 1992 was amended in 1996 so that it guarantees full repatriation of the amount received from the sale of equity, profits or dividend and interest on foreign loan. In addition, Nepal has also signed the Bilateral Investment Protection and Promotion Agreements (BIPPA) with six countries viz. France, Germany, UK, Mauritius, Finland and India. The signing of PTA with India aims to open up the Indian power market for Nepal hydro projects through cross border transactions.

In spite of enormous hydropower potential, the power sector could attract a very limited amount of FDI. The high off take risk for the domestic projects on account of NEA's weak financial condition and payment security guarantees sought by lenders as well as the high political risk have contributed to limited FDI inflows in the energy sector.

The Nepal Government has signed project development agreements (PDAs) with two Indian companies regarding 900 MW Arun III (\$ 825 million) and 900 MW Upper Karnali projects (\$ 1.4 billion) in 2014. The commercial operation of the project is expected to begin in September 2021 with financial closure to be completed by September 2016. GMR has also partnered with International Finance Corporation (IFC) in developing the Upper Karnali project and two high-powered transmission lines. GMR is also at an advanced stage of developing another big project, Upper Marsyangdi-2 (600 MW). Three Gorges Corp., a Chinese company is discussing a JV with NEA for the West Seti project. The experience of the implementation for the two PDAs signed for Upper Karnali and Arun III shows that though the policy directives are in place, the implementation is lacking due to the absence of guidelines. Both the projects are yet to achieve financial closure due to pending issues. The developer for the Tamakoshi 3 recently moved out of the project citing various reasons including lack of clarity on policy amongst others. The

finalisation of the PDA and PPA is mired in delays and there are bankability issues, which deter foreign investments in the sector.

While Nepal has established some investment-friendly laws and regulations since 1991, practical problems like laws limiting the operation of foreign banks, limited currency exchange facilities, and the government's monopoly over certain sectors of the economy, such as electricity transmission continue to undermine foreign investment in Nepal. The recent spell of political uncertainty coupled with delays in approval of key legislations like the amendment to the Electricity Act and formation of the Electricity Regulatory Commission have negatively affected the investment climate.

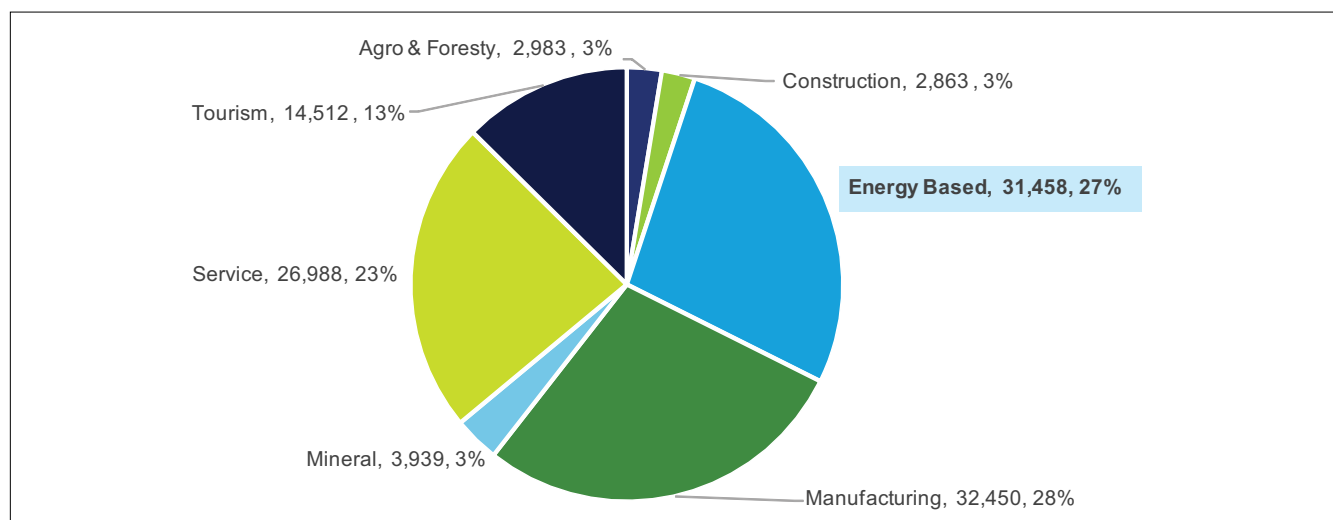
Domestic investments in Nepal's hydropower is limited as Banks and Financial Institutions (BFIs) in Nepal are underdeveloped and lack the managerial capacity to implement such huge projects. Given the high technical requirements and long gestation periods, the participation of Nepali BFIs has not been encouraging. The market is still working with collaterals and personal guarantee backed financing and project financing is limited.

Under current administrative procedures in Nepal, foreign investors are required to obtain licenses for manufacturing or service sector investments. Investments below USD 20 million are referred to the Department of Industry for action and are typically approved at the departmental level without the involvement of the Industrial Promotion Board (IPB). For investments over USD 20 million, up to six ministries review the business proposal prior to consideration by the IPB.

The Department of Electricity Development, under the MOE, is responsible for licensing all investments in hydropower projects. However, the MOE itself invariably makes the decisions on project proposals that involve foreign investment. The licensing of new investments is often time-consuming and requires prolonged negotiations. The IPB law requires that a licensing decision be made within 30 days of an application's submission; however, this deadline is not generally met because of the additional provision that requires that all necessary information be submitted before a decision can be made.

Data from NRB indicates that the energy sector (Figure-44) accounted for NPR 31.5 billion (0.29 billion USD on 2016 rates) or 27 per cent of the total approved foreign investments of NPR 115 billion (1.06 billion USD on 2016 rates) up to FY 2014.

Figure 44 Approved Foreign Investments (in NPR Million)



During 2013-14, a total credit of NPR 21.38 billion (USD 213 million) was extended to the energy sector as a whole with NPR 17.35 billion (USD 173 million) being extended to the hydropower sector. However taking into consideration the Hydropower Development Plan and its budget of NPR 3.3 trillion (USD 33.61 billion) over a period of 20 years, a yearly budget of at least NPR 165 billion (USD 1.68 billion) will be required for the development of 25,000 MW of hydroelectricity within 20 years. It therefore seems unlikely that domestic finances will be enough for the development of the hydropower sector as per the Hydropower Development Plan. While the domestic financial market is still underdeveloped in terms of meeting the needs of large-scale hydropower development projects, it is still able to develop relatively smaller projects.

The Government of Nepal has set up a SPV, Hydroelectricity Investment and Development Company Limited (HIDCL), in 2011 as a public investment company with 80 per cent equity owned by the Government of Nepal and three state owned companies while 20 per cent equity has been issued to the general public as an Initial Public Offering (IPO). The company has made a total loan commitment of NPR 3.2 billion (0.03 billion USD at 2016 rates) in the eight hydropower projects under consortium finance, ranging from NPR 200 million (1.84 billion USD at 2016 rates) in Bagmati Small HEP (20 MW) to NPR 600 million (5.51 billion USD at 2016 rates) in Lower Solu (82 MW).

SWOT Analysis

Nepal has abundant hydro resources but it needs investment for power generation and transmission. Its power link connection to India provides it the opportunity to export power to India and it also has the institutional framework to encourage PPP. Its favourable FDI policy allows 100 per cent ownership and an easy exit option. Nepal has issues with a poor legal system and dispute settlement mechanism. Its capital market is also underdeveloped and most of its power and development projects rely on grants and foreign investors. Nepal has an ambitious policy target to achieve 10 GW by 2026. Because of similar power connection links hydropower from Nepal will have to compete with hydropower from Bhutan.

The following Figure-45 provides the SWOT analysis for the investment scenario in Nepal.

Figure 45 Nepal – SWOT Analysis

Strengths	Weakness
- Proximity to the regional demand centres and operational transmission links - Favourable FDI regulations allowing 100% ownership with easy exit option - Focus on export oriented hydropower projects	- Poor legal system and dispute resolution - Limited access to electricity and weak distribution network encourages off-grid solutions - Underdeveloped capital market with limitations to fund large hydropower projects
Opportunity	Threats
- High hydro power potential with 98% as unutilised - Opportunity to sell power to power deficit countries - Requirement to procure power in the short term - Energy Crisis Policy targets to develop 10 GW power by 2026	- High project execution risks due to prolonged negotiations and political uncertainty - Competition from Bhutan's hydropower - Environmental and social issues can delay the project development

Risk Assessment

Nepal has very high risk of business environment because of the uncertain political landscape and absence of a regulatory framework. Construction risk is also high with Nepal because of an uncertain environment and social assessment and lack of technical studies.

Off-taker risk is high as there is a single off-taker within the country also there are limitations in power transmission. Foreign exchange risk is high as there is no clear policy on pass through of Forex and there has been reluctance to enter into dollar denominated PPAs for domestic projects.

There are various issues with power generation, transmission and distribution. Power generation operational risk is moderate because of delays in signing of PPAs and prolonged negotiations. Operational risks in power transmission are high because of the lack of appropriate infrastructure. Distribution also faces issues of limited access and inconsistency in setting tariffs thus leading to high risks.

Though PTAs have been signed with India there have been limited power transfer capabilities because of which cross-border trade poses high risk.

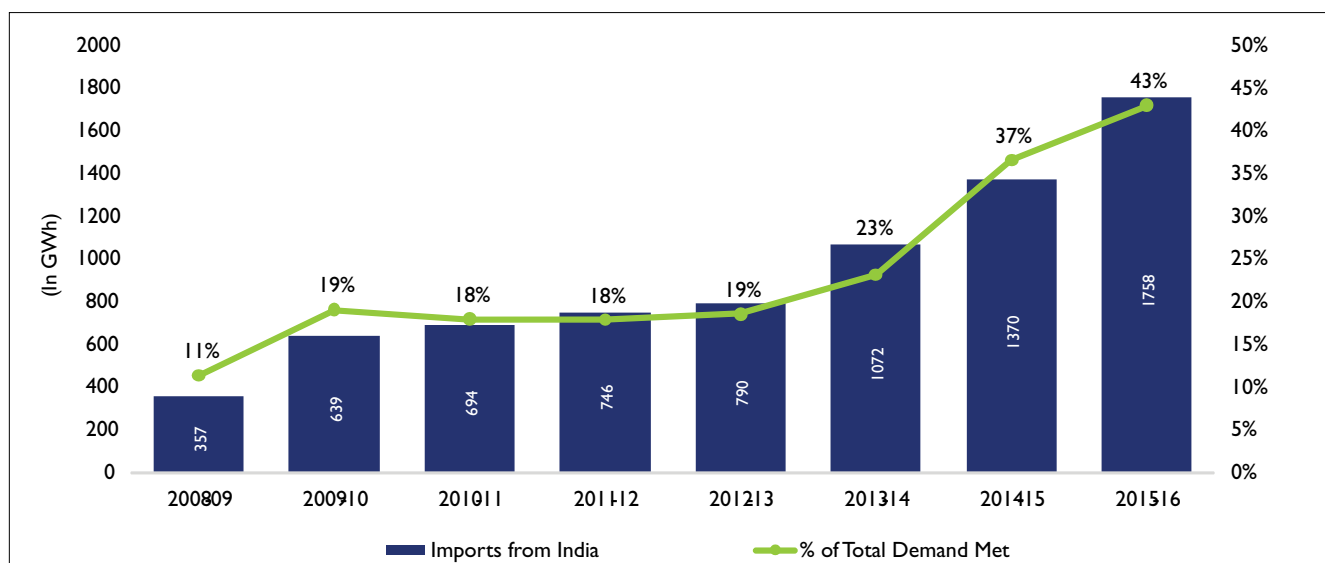
Figure 46 Nepal - SWOT Analysis

Risk Factors	Rating	Key Issues
Business Environment		Political Instability, lack of consistency in policies, absence of regulatory framework, No clarity on structural reforms
Construction		Lack of clarity on the environmental & social assessments, minimal technical studies
Off-taker		Single Off-taker within the country, Limited exposure to cross border market in India, transmission limitations
Foreign Exchange		Reluctance to sign dollar denominated PPAs for domestic projects, lack of policy framework for pass through of forex
Operational – Generation		Delays in signing of PPAs, prolonged negotiations
Operational – Transmission		Lack of appropriate infrastructure
Operational - Distribution		Limited Access, No consistency in tariff setting mechanism
Cross border trading		Power Trade Agreement signed with India but yet to be implemented, limited power transfer capabilities

 Very Low
  Low
  Moderate
  High
  Very High

Current CBET interconnections

The Indo-Nepal Power Exchange began in 1971 with the exchange of 5 MW of power on the principle of catering to the need of isolated pockets on either side of the border. Imports from India accounted for nearly 43 per cent of the annual electricity supply of the country in 2015-16 (Figure-47).

Figure 47 Power Import from India

Source: NEA Annual Report

The power exchange still takes place on radial mode between NEA and utilities on the Indian side. Nepal receives power in three modes.

- River Treaties: Koshi Treaty, Gandak Treaty and Mahakali Treaty
- Border Town Exchange Programme
- Commercial Power trading with PTC/NVVN

Most of the power supply is through the State of Bihar. There were 21 interconnections for power exchange through 11kV, 33kV and 132kV transmission lines. Out of these interconnections, some 11 kV and 33kV lines are not being utilised and have been discontinued. The interconnection points still in use are shown below (Table-23).

Table 23 India-Nepal interconnection points in use

Bihar (India) – Nepal	400 kV (220 kV)	• Dhalkebar (Nepal) – Muzaffarpur (India)
	132 kV	• Kataiya – Duhabi • Gandak East – Gandak/Surajpura (Nepal)
	33 kV	• Birganj – Raxaul • Kataiya – Biratnagar (Rupri) • Kataiya – Rajbiraj • Sitamarhi - Jaleswar
Uttar Pradesh (India) – Nepal	33 kV	• Anandnagar – Bhairwan line • Nanpara – Nepalganj line
Uttarakhand (India) – Nepal	33 kV	• Lohia – Mahendranagar (Nepal)
	11 kV	• Pithoragarh – Baitadi • Dharchula – Jajibe • Dharchula – Pipli

Proposed CBET interconnections

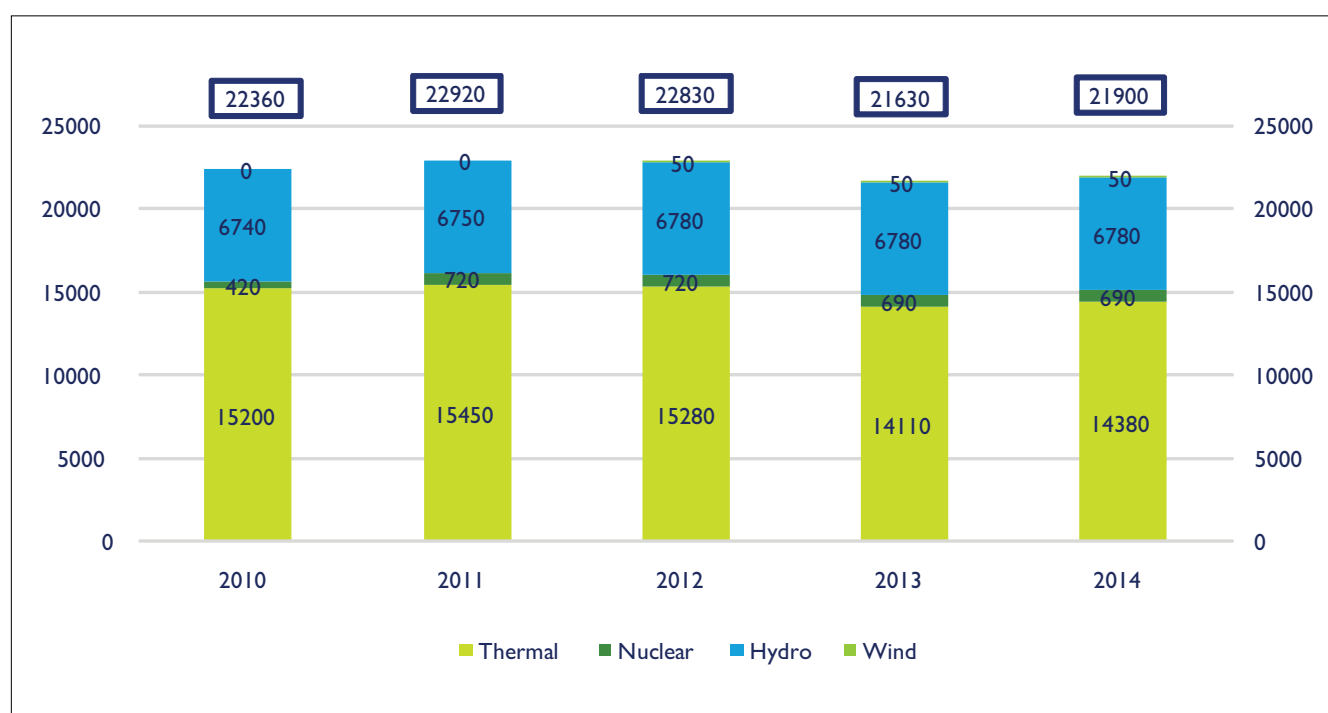
A few other interconnections between India and Nepal are under active consideration and a joint working group is finalising the same. This would add significant transmission evacuation capacity between the two countries and open up opportunities for trading of surplus hydropower from Nepal to other countries in the region.

7. Pakistan

Current Scenario

Pakistan's power generation is primarily thermal and hydro. Its energy access is low and needs to improve. Further, power transmission ties with India can be explored to get extra power. It is in the process of developing the CASA-1000 Project, which grants it access to hydropower generated in Tajikistan and Kyrgyzstan in Central Asia via the neighbouring country Afghanistan.

Figure 48 Pakistan Power Generation by Fuel Type (in MW)



Source: TSP data

Sector Outlook

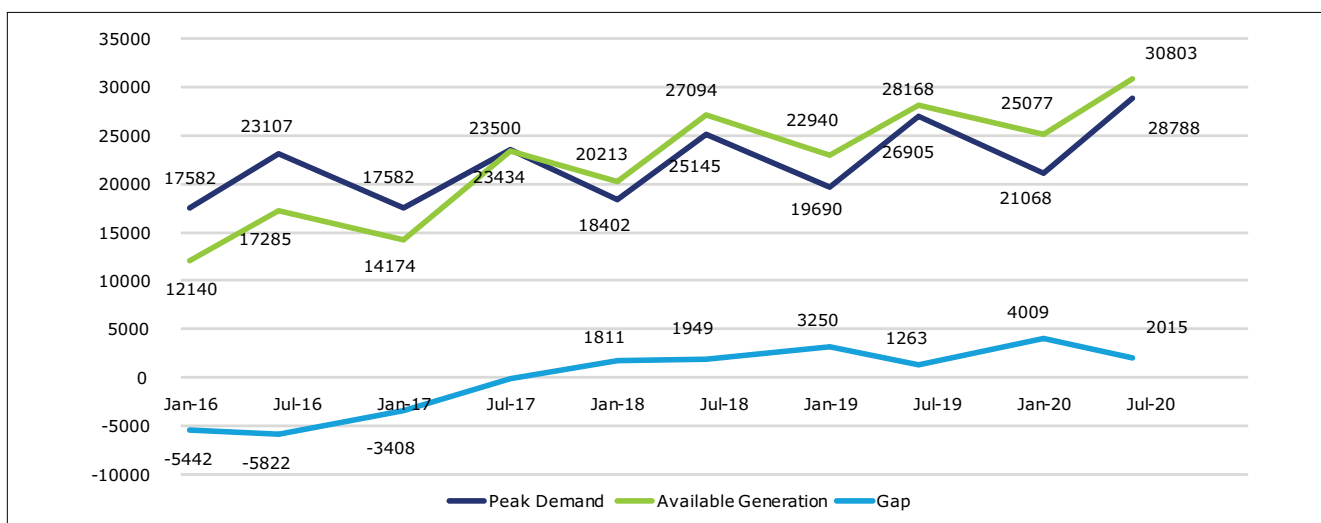
Pakistan's primary energy sources are thermal and hydro. It has a total installed capacity of 25 GW and faces a deficit of around six GW during peak summer months. The private sector's participation in the power sector is decent. The public and private sector's share is 53 per cent and 47 per cent respectively. The Government of Pakistan gave its approval to the Power Generation Policy 2015, which provides attractive incentives for private investors. It has also approved the Private Transmission Line Policy to allocate private investment in high voltage transmission lines.

Given below is a snapshot of Pakistan's present energy players.

- Transmission and Dispatch Company (NTDCL)
- Ten Distribution Companies (DISCOs)
- Four Public Sector Generation Companies (GENCOs)
- Thirty One IPPs

Pakistan hopes to break even in its power demand-supply scenario by 2017. Pakistan's power demand-supply scenario for 2020 by its Board of investors is as given below (Figure-49).

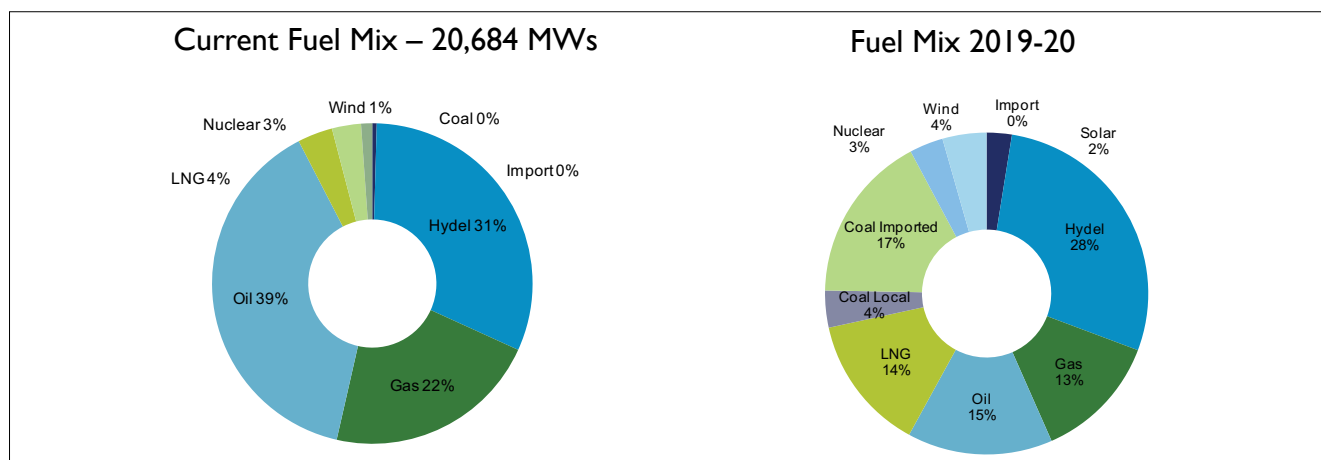
Figure 49 Pakistan - Power Demand and Supply (In MW)



Source: Board of Investment, Pakistan

Pakistan wants to change its fuel mix as illustrated in the Figure 50. It wants to reduce the percentage contribution of gas and oil to incorporate more of coal, LNG and renewables based sources.

Figure 50 Pakistan's Current and Future Fuel Mix



Source: Board of Investment, Pakistan

Pakistan's credit rating is expected to improve over time but presently it is not in very good shape. Pakistan's Forex reserve was at USD 18.69 billion in FY 2015. Pakistan's rate of inflation has been improving over the years (13.66% in 2011 to 5% in 2015).

The presence of several foreign and local terrorist groups poses a serious danger to outside investors. Corruption remains widespread in Pakistan at the federal level, especially in government procurement, international contracts, and taxation. In 2014, Pakistan ranked 126 out of 177 countries on the Transparency International Corruption Perceptions Index. Because of these reasons investor confidence remains low.

Pakistan's power generation is primarily thermal and hydro. Its energy access is low and needs to improve. Pakistan has around 50 per cent of private sector participation in its present installed generation capacity. Further, power transmission ties with India can be explored to get extra power. It is in the process of developing the CASA-1000 Project, which grants it access to hydropower generated in Tajikistan and Kyrgyzstan in Central Asia via Afghanistan. Pakistan has found China as a new investor who under the China Pakistan Economic Corridor wants to invest in Pakistan's power sector.

The Indo-Pakistan HVDC line envisages 500 MW in the first phase and an additional 500 MW in the second phase from India to Pakistan. This line will be 40 km long between Amritsar and Lahore. World Bank and USAID support investment for this project.

China is a major foreign investor in Pakistan's energy programme under the China Pakistan Economic Corridor. China is investing around USD 4.15 billion in the 660 MW Thar Coal Project and 1320 MW in a coal project near Karachi in Pakistan. China is also investing USD 1.65 billion in Pakistan's Karot hydropower (720 MW) under the China-Pakistan Economic Corridor programme. China is also funding a solar power plant with a capacity of 1000 MW in Pakistan's Punjab Province.

There are a number of upcoming IPP projects. The following power projects are under implementation:

- 870 MW Suki Kinari
- 720 MW Karot Hydropower Project
- 1320 MW Sahiwal Power Project
- 102 MW Gulpur Hydropower Project
- 640 MW Azad Pattan Hydropower Project
- 500 MW Chakothi-Hattian Hydropower Project

Investments

In the peak summer months, the electricity demand-supply gap reaches up to 6,000 MW resulting in load shedding of up to 8-16 hours per day. Even if the maximum capability of 18,477 MW were assumed, the country would need an additional 13,310 MW (net) by the year 2020, requiring an investment of USD 15 billion.

Pakistan created PIBB in 1994 as a one-window facilitator for promoting participation in Pakistan's power sector. IPPs are around 50 per cent of the country's present installed generation capacity and attracted an investment of USD 9.4 billion. Thirty one independent power projects totalling a capacity of 9,071 MW were inducted by PIBB.

Pakistan's FDI position is steadily improving after a substantial dip in 2012. In 2014, its FDI stood at USD 1.77 billion. The following figure-51 illustrates Pakistan's FDI position in the last couple of years.

Figure 51 FDI Position in Pakistan

Year	2011	2012	2013	2014
FDI net inflows, current USD (Billion)	1.3	0.859	1.33	1.77

Source: The World Bank

Foreign investors have poured USD three billion over the last year into the renewable energy sector in Pakistan as per Alternative Energy Development Board (AEDB).

SWOT Analysis

Pakistan has a relatively large power market and the potential to grow. It has few incentives for investors as its domestic and foreign investors are given the same treatment. There is no minimum requirement for the amount of foreign equity investment or upper limit for foreign equity participation. With the CASA-1000 link, it has the opportunity to trade power with central Asia and if the connection with India comes through then it can facilitate power trade opportunities between Central and South Asia. Pakistan's new focus is on coal-based generation.

Pakistan poses high political and security risk and threat to establishments because of various terror outfits. China has emerged as the preferred partner for Pakistan and the Pakistan-China economic corridor envisages establishing multiple power projects in Pakistan. The following Figure-52 provides the SWOT analysis for the investment scenario in Pakistan.

Figure 52 Pakistan – SWOT Analysis

Strengths	Weakness
- Relatively large power market - Domestic and foreign investors provided similar incentives, concessions, and facilities for industrial development - No minimum requirement for the amount of foreign equity investment or upper limit on the share of foreign equity - Endowed with coal, hydro, oil and gas	- Poor legal system and dispute resolution - Incomplete protection for the acquisition and disposition of property rights - Corruption can affect project delivery adversely
Opportunity	Threats
- Interconnection with Central Asia via Afghanistan and proposed link to South Asian power market through India - Emphasis on coal based generation in coming years, shifting focus from existing hydro, oil and gas	- High political risk - Constant terror threat to establishment and personnel - China Pakistan Economic Corridor crowding out other potential investment opportunities

Risk Assessment

Pakistan has high business environment risk due to high political risk and security concerns, though progress has been made in the policy and regulatory framework and a strong legal framework. Construction risk is moderate because of issues concerning land acquisitions. Off-taker risk is moderate because the financial viability of utilities is not clearly established and there are issues related to transmission open access. Foreign exchange risk is moderate as FDI is allowed and the convertibility of Pakistani rupee is not an issue. Generation has low risk because of dependency on gas based power generation. Transmission and distribution pose moderate risk due to a moderate national grid and though regulatory mechanisms are in place tariffs are not cost reflective for distribution. Pakistan is discussing a cross-border link with India and is in the process of implementing CASA-I000 and has low risk of cross-border power trade.

Figure 53 Pakistan – Risk Assessment

Risk Factors	Rating	Key Issues
Business Environment		Political risks are high, reasonable progress in policy and regulatory framework, strong legal framework
Project Construction		Land acquisition is a challenge,
Off-taker		Financial viability of utilities is an issue, transmission open access
Foreign Exchange		FDI allowed, convertibility of rupee is not an issue
Operational – Generation		Gas based projects
Operational – Transmission		Moderate national grid
Operational – Distribution		Regulatory mechanism in place but tariffs are not cost reflective
Cross border trading		Connectivity with Afghanistan under implementation

 Very Low
  Low
  Moderate
  High
  Very High

Existing CBET interconnections

There are no existing interconnections in South Asia

Proposed CBET Interconnections

■ Central Asia South Asia-I000 (CASA I000)

CASA-I000 is the project, which connects the power surplus region in Central Asia (The Kyrgyz Republic and Tajikistan) to power deficit countries in South Asia (Pakistan and Afghanistan).

The CASA-1000 Project includes the following:

- 500 kV AC line from Datka (in the Kyrgyz Republic) to Khudjand (477 kms away, in Tajikistan)
- 1300 megawatt AC-DC Convertor Station at Sangtuda (Tajikistan)
- 50 km HVDC line from Sangtuda to Kabul (Afghanistan) to Peshawar (Pakistan)
- 300 megawatt Convertor Station at Kabul (with import and export capability)
- 1300 megawatt DC-AC Convertor Station at Peshawar

In the long run this project's target is to develop CASAREM, which will facilitate power transfer among these four countries. The CASA-1000 transmission system hopes to achieve electricity transmission at high voltages between the Kyrgyz Republic and Tajikistan (the first 477 kms) and from Tajikistan to Afghanistan and Pakistan (the next 750 kms). In total, 1,222 kms of line to be laid out for energy transfer among the four countries.

Pakistan - India

A transmission link to carry 500 MW power over an AC or HVDC power link between the Punjab provinces of the two countries (Amritsar-Lahore) has been under discussion.

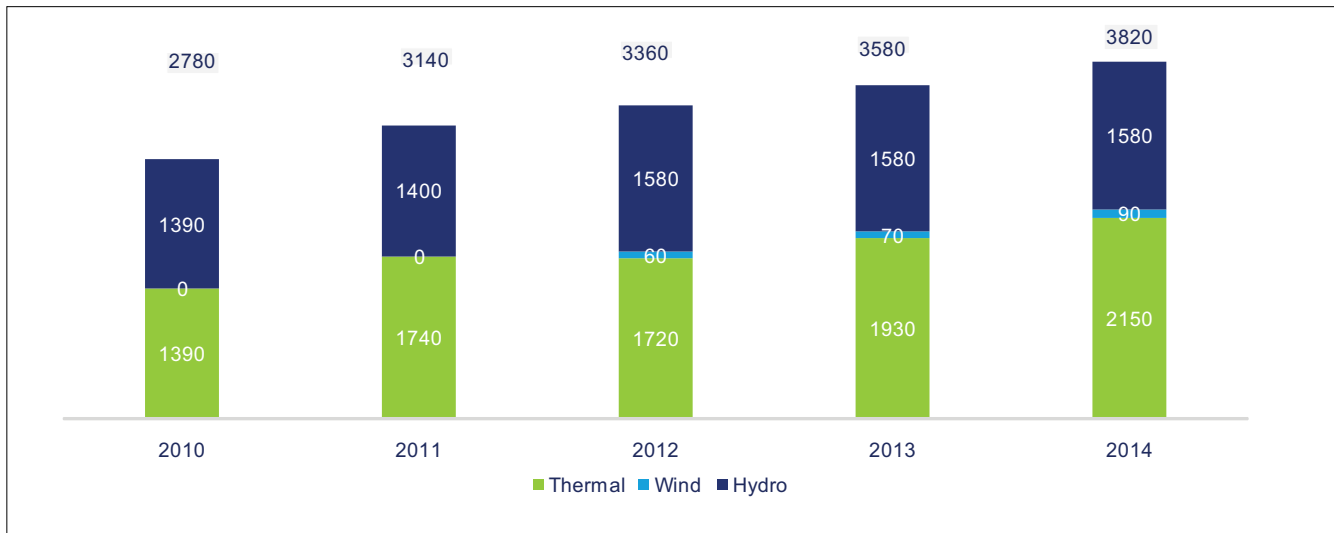
8. Sri Lanka

Sri Lanka is located off the southern coast of India in South Asia. Despite a long civil war that lasted from 1983-2009, the GDP grew at an average of around five per cent from 2000-2008. The GDP growth has registered a growth of around 7.5 per cent since the end of the war in 2009.

Current Scenario:

Over the past two decades, Sri Lanka's electricity generating capacity has been in transition from a system dominated by hydro to a mixed hydrothermal system, with thermal power fuelled mainly by imported oil. In 2012, oil-fired thermal power provided nearly 60 per cent of generation, with hydropower providing 23 per cent. In 2013, however, there was a major shift to hydropower, which saw its share rising to about 50 per cent of total generation and that of oil-fired thermal power dropping to 28 per cent. In 2013, the share of nonconventional renewable energy (NCRE) increased from six per cent in 2012 to 10 per cent, already reaching the share targeted for 2015. The transmission grid now covers the whole of Sri Lanka, as the war-damaged northern Jaffna peninsula has now been rehabilitated; there are therefore no more physical difficulties in the transmission or distribution network that could possibly lead to load shedding. Electrification rates have improved significantly, and the share of households that have no grid access has decreased substantially from 71 per cent in 1990, to 35 per cent in 2002, and to only four per cent in 2013.

Figure 54 Installed Capacity in Sri Lanka (In MW)

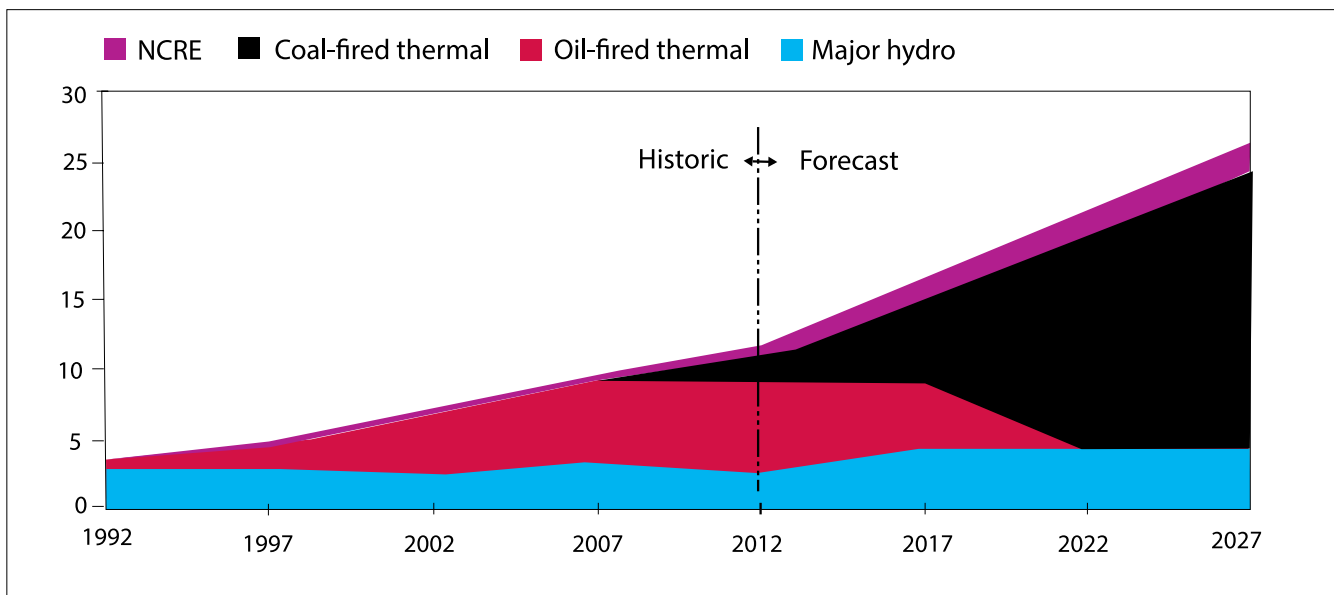


Source: TSP data

Sector Outlook

Sri Lanka's total electricity requirement is increasing. Its peak demand is expected to grow from 2400 MW in 2015 to 7000 MW in 2039 as per its long-term generation plan (Figure-55).

Figure 55 Sri Lanka Long-term Generation Plan (In TWh)



TWh = terawatt-hour, NCRE = nonconventional renewable energy

Source: CEB (2013)

Private sector participation in future power generation will be in the area of renewable energy. To meet the government's target of generating 10 per cent of energy through renewable energy sources requires substantial investment in renewable energy, especially in wind power generation.

Sri Lanka is another island country in the region with a population of 20 million (year 2012). Its GDP per capita is the second highest in the region, after Maldives. It is power hungry like other countries in the region and mainly dependent on imports to address its power needs. It is not connected to any other country in the region and country nearest to it is India.

Private players have a significant share (around 40%) in thermal power plants and they also have a presence (around 22.5% share) in the renewables segment. The Ceylon Electricity Board (CEB) handles the majority of state owned projects. CEB has plans to increase thermal (oil & gas, coal) projects. A few examples are:

- Second coal power plant in Sampur (CEB, USD 1000 million)
- 30.5 MW Moragolla Hydropower Project (CEB, USD 125 million)
- 35 MW Broadlands Hydropower Project (CEB, USD 82.5 million)
- Wind power farm in Mannar (CEB, 375 MW, USD 180 million)
- Oil and gas exploration in Block SL 2007-01-001 (PRDS, USD 260 million)

Apart from the projects mentioned above, CEB is ramping up Sri Lanka's power generation and transmission capacity through various projects in thermal (oil & gas, thermal) and renewables.

Investments

Sri Lanka's power sector has been driven by the government owned CEB, which manages generation, transmission and distribution areas. The private sector involvement in generation since 1996 is not generally considered to be a success story. While IPPs have been able to fill the demand supply gap, the average generation cost is higher than the CEB plants. The Sri Lanka Electricity Act No. 20 of 2009 does not envisage privatisation of state entities, so CEB's functional business units are likely to continue as such. However, LECO, a state-owned company established in 1984 to distribute electricity in areas previously served by local authorities (municipal councils, etc.), continues to function as a successful commercially run company, with good technical performance.

The following Table-24 illustrates the private vs. government (CEB) investment in renewable and thermal power projects.

Table 24 Private Participation in Sri Lanka's Power Sector

Resource	Type	Capacity (MW)
Renewables (including Hydro)	CEB	1,359
	Private	400
	Total Renewable	1,758
Thermal	CEB	1,137
	Private	796
	Total Thermal	1,933
Total Installed Capacity		3,691

Source: ADB

SWOT Analysis

Sri Lanka has established a PPP framework and its government has supportive policies for starting new businesses. Its government also provides generous tax incentives for large projects, which are identified as strategic development projects. It does not have access to regional power markets. If the link with India comes through then Sri Lanka will have the option to participate in the regional power market. There have been a few instances when its government interfered and repudiated contracts signed by earlier governments. IMF has warned Sri Lanka's Central Bank not to frequently interfere to artificially maintain exchange rates.

The following Figure-56 provides the SWOT analysis for the investment scenario in Sri Lanka.

Figure 56 Sri Lanka – SWOT Analysis

Strengths	Weakness
- Established private sector investment framework for power sector, particularly generation and renewables - Government's generous policies for starting new business - Generous tax incentives to large projects identified as strategic development project - FDI allowable limit is 100% - National treatment to foreign investors - Endowed with coal, hydro, oil and gas	- Poor record of handling investment related issues and prolonged dispute resolution mechanism - Very high interest rate (~14%) - Limited access to regional power sector market, the transmission interconnection option is costly
Opportunity	Threats
- Increasing demand supply gap and limited resources (gas and coal) - Opportunity to participate in regional power market if Indo-Sri Lanka link comes to existence - High paying capacity of customers (second highest GDP per capita in the SA region)	- Contract repudiation - Regular interventions by central bank to maintain exchange rates - High national debt and widening current account deficit

Risk Assessment

Sri Lanka has moderate business environment risk because of political uncertainties though it provides preferential treatment to foreign investors in legal and policy issues. It has moderate construction risk due to restrictive real estate investment policies and foreigners are prohibited from land purchase. Off-taker risk is also moderate as only one agency is responsible for generation, transmission and distribution. Foreign exchange risk is high as Sri Lanka's Central Bank frequently interferes with exchange rates to manage them artificially. There is low risk related to operational issues in generation as there is a license regime for generation and CEB, IPP and SPPs participate in generation activity. Power transmission risk is moderate as only CEB takes care of bulk power transmission. Distribution is low risk and looked after region wise by CEB and LECO. Cross-border power trade with India has been on cards for Sri Lanka for quite some time but it is not taking off due to the high costs and political reasons. Also there are no links possible with any other country hence high cross-border power trade risk.

Figure 57 Sri Lanka – Risk Assessment

Risk Factors	Rating	Key Issues
Business Environment		High Political risk, Frequent changes in plans and focus, evolving regulatory framework
Project Construction		Foreigners prohibited from land purchase and tax issues on land lease
Off-taker		Vertically integrated Utility supported by Government, tariffs are not cost reflective
Foreign Exchange		Part local currency denominated PPAs exposes FDI to currency fluctuation risks
Operational – Generation		CEB dominance though IPPs exist, licensed activity
Operational – Transmission		CEB has full responsibility of transmission and load despatch, no open access
Operational – Distribution		CEB and LECO are two utilities with own areas of operation
Cross border trading		Under sea cable with India has been under discussions, viability is not clear

Very Low
 Low
 Moderate
 High
 Very High

Existing CBET interconnections

There are no existing CBET interconnections.

Proposed CBET Interconnections

A HVDC power transmission link, including submarine cables 50 kms under the Gulf of Mannar between Rameswaram in Tamil Nadu and Talaimannar in Mannar Islands in Sri Lanka, has long been contemplated between India and Sri Lanka. After detailed feasibility studies by PGCIL, this project has not moved forward because of its high cost. If this power link come into existence, it will connect Sri Lanka to the Indian national grid, thus enabling power trade between two countries. The link was planned with an initial capacity of 500 MW with the scope to upgrade it to 1000 MW.

Annexure 3: International experience in CBET

CBET has been established in various parts of the globe with multiple objectives like energy security, energy reliability, portfolio diversification and cost optimisation. Through CBET, the participating countries seek to ensure diversification of resources to reduce high dependence on any particular fuel and hedge against supply disruption.

A brief profile of the key regional groups is presented below.

I. South Africa Power Pool (SAPP)

SAPP comprises of 12 Southern Asian Development Community (SADC) member countries, out of which nine are operating and account for 97 per cent of the power produced by the SAPP countries.

Member countries: Angola, Botswana, DRC, Mozambique, Lesotho, Malawi, Namibia, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe

Key features

The South African Power Pool, established in 1995, is one of the most advanced power pools in Africa based on its size relative to other international power pools. SAPP was formed to promote energy integration and development, undertaken by SADC established in 1992.

A major economic and political reason for the development of SAPP has been South Africa's aspiration to meet future energy supplies from low cost hydropower supplied by its neighbours.

Background

The South African region was divided into the hydro rich northern region and thermal rich southern region. The two networks were linked by weak lines of 220 kV and 132kV via Botswana until 1995, when the 400kV line was constructed. The interconnection of the northern and southern networks created a platform for regional trade and cooperation.

In 1995, the Ministers responsible for energy in the SADC signed an Inter-Government MOU that led to the creation of a power pool called SAPP. The aim was to optimise the use of available energy resources in the region and support one another during emergencies for the following.

- Facilitate the development of a competitive electricity market in the Southern African region.
- Give the end user a choice of electricity supply.
- Ensure that the Southern African Region is the region of choice for investment by energy intensive users.
- Ensure sustainable energy developments through sound economic, environmental and social practices.

Evolution of SAPP

The Regional Electricity Regulators Association of Southern Africa (RERA) was established by the SADC as a formal association of electricity regulators in July 2002, particularly in terms of the SADC Protocol on Energy (1996) and of the SADC Energy Cooperation Policy and Strategy (1996). RERA's mission is to facilitate synchronisation of regulatory policies, legislation, standards and practices and to be a platform for effective cooperation among energy regulators within the SADC region. Membership to RERA is open to electricity supply industry (ESI) regulators in each country within SADC. Each country is limited to a single membership.

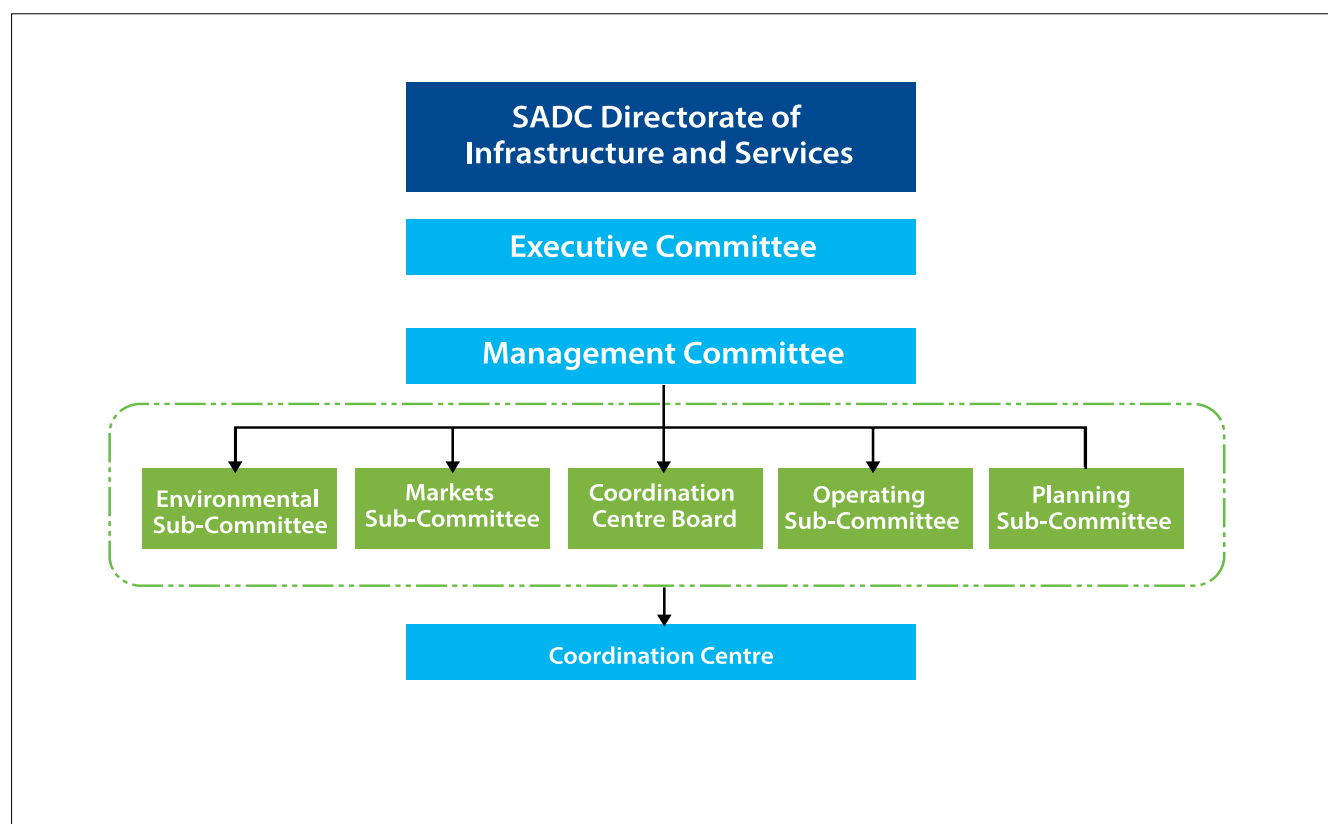
In April 2001, SAPP started the Short Term Energy Market (STEM) with two members. Three years later, an agreement between the Government of Norway and SAPP provided SAPP with a grant of NOK 35 million, which led to the development of competitive electricity market followed by Day Ahead Market-trading platform. STEM requires firm contracts and security deposits and provides for penalties for non-performance.

In 2010, SADC completed the Regional Energy Access Strategy and Action Plan (REASAP) that aims to harness regional energy resources to ensure, through national and regional action, that all the people of the SADC region have access to adequate, reliable, least-cost, and environmentally sustainable energy services. REASAP also aims to halve the proportion of people without such access within ten years for each end user, and halve it again in successive five-year periods, until there is universal access for all end users. In the context of the Regional Infrastructure Development Master Plan (RIDMP) for electricity, where access is currently 24 per cent, this means that the number of people without access will result in 62 per cent access by 2022 and 81 per cent access by 2027.

Institutional Framework

SAPP's guiding structure (Figure-58) is based on the Intergovernmental MOU that authorises and guarantees inter-utility MOU and operating agreements - Inter-utility MOU (IUMOU) deals with the issue of ownership and rights among the participants whereas the Agreement between Operating Members (ABOM) defines the interaction between the utilities with respect to operating responsibilities. Further, the operating guidelines (OG) set out the arrangement for cost sharing and functional responsibilities for plant operations, maintenance and safety rules.

Figure 58 SAAP Institutional Framework



Key lessons from SAPP experience

- Although the initial SAPP trading activities were based on excess generation capacity that was available for various historical reasons, it was recognised from the outset that the major benefits would come from coordinated investment in new generation and transmission facilities. The Planning Subcommittee was given the responsibility of developing a coordinated development plan, known as the SAPP Pool Plan, to serve as a tool for investment promotion. It is important to note that the SAPP Pool Plan was regarded as being for indicative purposes only and was not intended to be binding on member states.
- Central to the realisation of the recommended Pool Plan is the increased transmission investments required to facilitate large power transfers from areas of low-cost generation in the north to areas of high demand in the south. This involves the acceleration of the interconnection of non-operating members and the strengthening of the central transmission corridor between DRC, through Zambia, Zimbabwe, Mozambique and Botswana to South Africa.
- SAPP's role in the planning and building of assets has largely been advisory. The SAPP Pool Plan provides the framework for regional investments, but the final decision of the assets to be built is made by the member states. The key challenges concerning the power sharing agreements revolve around overcoming differences in the capacity and needs of the member states, lack of adequate infrastructure and maintenance which limits interconnection between countries, which led to operational issues.
- With respect to ownership, all of the generators and interconnectors in the SAPP region are in public ownership, with the assets being reflected in the books of the national utilities. In some cases, SPVs have been formed to execute joint projects (such as MOTRACO, which is jointly owned by Eskom, SEB and EDM). Hidroeléctrica de Cahora Bassa is something of an exception because the governments involved have direct ownership. The only electricity asset of regional significance, which is privately owned, is the Copperbelt Energy Corporation transmission lines and power plant in Zambia.
- Financing of SAPP is at two levels. Regional infrastructure investments are financed and undertaken by the utilities involved or by special-purpose companies set up to execute the projects (e.g., MOTRACO and WESTCOR).
- The financing requirements of SAPP as an organisation are covering the costs of the SAPP Coordination Centre and the activities of the subcommittees, Management Committee and Executive Committee. Financing for executing various studies of common interest for the pool members is also channelled through SAPP.

2. Greater Mekong Sub-region (GMS)

The Greater Mekong Sub-region (GMS) comprises Cambodia, the People's Republic of China (PRC), Lao People's Democratic Republic (Lao PDR), Myanmar, Thailand, and Vietnam. In 1992, with Asian Development Bank's (ADB) assistance, the six countries entered into a programme of sub-regional economic cooperation, designed to enhance economic relations among these countries. Establishing an integrated electricity market is one of the major components of such cooperation.

Key Features

GMS countries are characterised by uneven load demand and different resource bases. Myanmar and Laos have abundant hydropower resources; Thailand has limited hydropower, Cambodia has diverse resource potential including hydro and natural gas. As the demand for power in Vietnam and Thailand is huge, CBET presented an excellent opportunity for efficient utilisation of energy resources.

The GMS electricity market consists of the China (Yunnan Province), Lao PDR, Myanmar, Thailand, and Vietnam. The GMS model has been successful due to the emphasis that has been placed on ensuring a gradual evolution of the regional market from bilateral contracts to a more complex, centralised regional trading system. The GMS' aim is progressing towards a more centralised regional trading system, which would be helped by strong, enforceable inter-governmental commitment, and regional decision-making entities.

The countries of GMS first documented their intention to develop the infrastructure and institutions necessary for cross-border power trading in the 1998 Policy Statement on Regional Power Trade in Greater Mekong Sub-Region, adopted at the Fifth Electric Power Forum Meeting. In 2003, the GMS governments signed an Inter- Governmental Agreement (IGA) on Regional Power Trade in the Greater Mekong Sub- Region. The IGA created the Regional Power Trade Coordination Committee (RPTCC), which is tasked with coordinating the activities of the GMS member states and conducting planning and system operation studies to move towards common power trading guidelines.

Background

In 1998, all the countries in GMS except Thailand were transitioning from closed economies to liberal and open economies. The countries were resource rich and there was an opportunity to complement each other's potential. A demand supply deficit was envisaged in the countries, however there was a lack of private capital to invest in generation assets. Regional cooperation and trade offered a better deal for investment. Also in terms of energy security in the region, an integrated approach offered sustainable, secure and competitive energy. More importantly it could utilise domestic resources in a more optimal, environmentally sound manner and reduce oil dependence. The key drivers for GMS power trade are:

- National forecasts see demand for electricity continuing to grow at the rate between 9 per cent and 15 per cent per year for the next decade.
- GMS countries are characterised by uneven load demand and different energy sources
- The largest hydropower resources are in Myanmar, Laos and in Viet Nam; Thailand has limited mineral as well as hydropower resources; Cambodia has diverse resources including hydropower and natural gas but are yet to be fully developed; PR China, Vietnam and Thailand have huge power demands and then huge needs for power imports. Thus, regional cooperation in power trading presents excellent opportunities for the efficient utilisation of regional energy resources in meeting growing national electricity demand.

Power trading in the GMS has the following potential benefits.

Efficiency benefits — The substitution of hydropower for coal and other fossil fuels is expected to reduce the cost of power production. It also helps efficiently utilise the sub region's energy potential by reducing investments in power reserves to meet peak demand, reduce operational costs, achieve more reliable supply, and reduce system losses. Also countries with energy surplus can benefit from interconnection by servicing their deficit areas more efficiently with power imports from other grids.

Environmental benefits — The regional electricity market is expected to allow hydropower development in Lao PDR, Burma and Yunnan, which is expected to achieve environmental benefits by substituting hydropower for coal and other fossil fuels.

Competition driving down prices — Competition among different dam projects in a regional spot market is expected to drive prices down so consumers will enjoy low, competitive prices.

Evolution of GMS regional power trade

The regional electricity trade in the GMS market is to be developed in four stages. The points below describe the four stages:

- Stage 1—Bilateral cross-border connections through PPAs.
- Stage 2—Grid-to-grid power trading between any pair of GMS countries, eventually using transmission facilities of a third regional country. Grid-to-grid trading to include short-term trading, non-firm trading and methodology for pricing of wheeling services.
- Stage 3—Development of transmission links dedicated to cross-border trading. This stage envisages that new transmission investments will be made solely for cross-border trading. To complete Stage 3, the GMS governments would likely have to agree to a transmission pricing methodology.
- Stage 4—Most GMS countries would move to a centralised regional trading system, allowing a regional wholly competitive market. To complete Stage 4, the GMS countries would need to agree on regulating cross-border power trading and regional dispatch.

Though GMS had a four-phased approach for regional trade and integration, they started with bilateral trading, which is a good first step for developing cross-border supply. GMS governments' have emphasised a gradual evolution of the regional electricity market from bilateral trading to a centralised regional trading system. This emphasis on gradual implementation has two potential advantages:

- Bilateral trade enables the benefits of a cross-border transaction to be realised immediately. While a centralised trading platform (or effective power pool) can take years to develop, bilateral trade can be negotiated over months.
- Bilateral trading helps move toward future regional trading. Bilateral trade helps to develop the physical infrastructure that is needed to underpin cross-border trading. Short-term trading does not provide sufficient revenue certainty to justify the construction of new generation and transmission facilities, which means that long-term bilateral deals are needed to provide investment certainty.

Surplus capacity can then be used for short-term trading and emergency support. While long-term cross border transactions have taken place in GMS despite the absence of a regional power pool, the GMS transaction-by-transaction approach may be feasible only when there are limited cross-border interconnections within the region. As regional interconnections grow, it becomes increasingly difficult and inefficient to pursue large cross-border transactions without an accepted region-wide foundation of accepted technical rules and transmission pricing agreements.

Power pools are the logical vehicle for developing these rules and agreements that increase certainty and reduce transaction costs. Bilateral agreements in the Greater Mekong provide compensation to the buyer for failing to meet certain plant performance standards on registered capacity, minimum capacity, reactive power, and loading rates. The provisions help to manage security of supply risks by providing strong incentives to supply contracted power at the point of delivery.

Institutional Framework

The coordinating institutions for the regional power market sit underneath the GMS Programme institutions. There are four institutions specific to the GMS power market:

- The Sub regional Electric Power Forum inaugurated in April 1995.
- The Regional Power Trade Coordinating Committee (RPTCC) established by the November 2002 Inter-Governmental Agreement.
- The Focal Group and Planning Working Group established under MOU #1, which are under the RPTCC.

EPF (Electricity Power Forum): The EPF serves as an advisory body to the GMS Ministerial Meetings on sub regional power issues. Its objectives, as set out in its Terms of Reference (TOR) are to:

- Act as a cooperative link among government agencies and related institutions directly involved in power supply and power system development in the sub region.
- Act as a promotional and advisory organisation for the development of efficient power systems in the sub region.
- Identify and promote opportunities for mutually beneficial sub regional cooperation projects in the power sector.
- Promote financing by government, utilities, donors and the private sector of priority projects related to the development of sub regional power systems.
- Provide a forum for discussing software issues, such as planning tools and pricing principles, related to sub regional cooperation in power projects.
- Provide and disseminate information to participating countries and cooperate with regional and international organisations.

Each GMS country is represented on the EPF by two members. One is a senior official from the ministry or other government agency responsible for power sector policy and planning and the other is a senior manager from the key power utility in the country. The EPF has been supplanted by the RPTCC, which has the same membership.

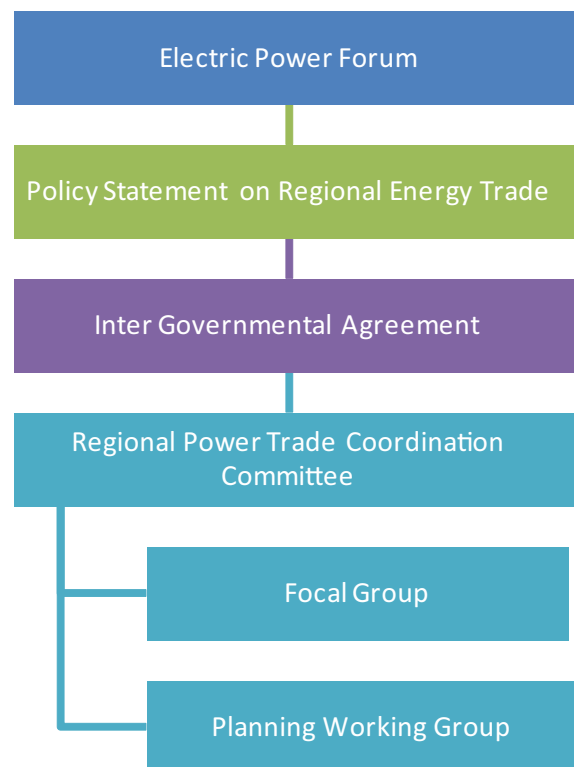
Regional Power Trade Coordinating Committee: The RPTCC was established under Article 4 of the IGA. Its role, as defined in the IGA, is to “...actively coordinate for successful implementation of regional trade and to represent the countries involved in regional power trade.” The RPTCC reports to the GMS Ministerial Meeting.

The IGA defined the RPTCC’s first task as establishing and implementing regional trade arrangements for endorsement by member countries. The specific requirements were given as the preparation of a plan to:

- Provide to the parties a final draft of the Regional Power Trade Operating Agreement (RPTOA), which will specify the rules of regional power trade.
- Provide to the parties a recommendation for the overall policy and day-to-day management of regional power trade, including the necessary bodies for coordination.
- Establish the short-, medium- and longer-term initiatives, which need to be pursued on a priority basis in order to achieve the objectives of regional power trade within a specified timetable.
- Identify necessary steps for implementation of regional trade, including means for financing.

Focal Group (FG) and Planning Working Group (PWG):

RPTCC’s Focal Group is tasked with coordinating priority RPTCC activities in each country and the PWG is tasked with undertaking planning and system



operation studies that would help the GMS countries move towards common power trading guidelines.

PWG's main objectives during Stage I of the regional power market are:

- Preparing a plan for developing a regional network with facilities that are dedicated to cross-border transactions but are not linked to specific PPAs.
- Planning and prioritising the addition of new transmission capacity, including recommendations regarding ownership and financing.
- Defining excess transmission capacity that is available on a non-firm basis to support short-term opportunity exchanges of power.
- Preparing plans for augmenting the capacity of existing cross-border transmission facilities and reinforcements required in national transmission systems to facilitate cross-border power trading.
- Participate in developing performance standards regarding safety-security, reliability and quality of service.
- Create and maintain the regional database on power trading with due regard to the confidentiality aspects of PPAs with private parties.

Regional Power Coordination Centre (RPCC): A permanent body, the Regional Power Coordination Centre (RPCC) was established in the GMS, approved by six countries in December 2013. RPCC will serve as a permanent institution owned by all GMS countries to enhance regional power trade and implement regional power interconnection in the GMS.

Key lessons from GMS power trade experience

- **Policy:** The IG agreement provided a basis for further cooperation. Each country has recognised and endorsed international trading in electricity to be an integral part of its domestic policies. An ad hoc group with no formal structure assumed responsibilities for developing the regional protocols and early planning for regional integration. Each government has established a clear policy as to which entity will own and operate the transmission assets within its boundaries;
- **Technical:** A master plan has been established to provide information on least-cost plant locations and transmission development. Each government commits to the construction of specific low-risk, least-cost transmission lines and transmission system operators develop an operations protocol to establish procedures to maintain reliable operations and facilitate trading.
- **Institutional:** The coordination initiative has been assumed by a regional coordination group. Each country established an independent regulator in order to reduce financial uncertainties. Development Banks provided technical assistance to strengthen institutions on power trade issues.
- **Transactional:** The Nam Theun II project for Laos and Thailand has been developed as part of an explicit transition from one-off bilateral transactions to more integrated, multi-country trading. The Thai entities have been actively financing projects in Laos supplying electricity to Thailand.

Case Study for GMS: Thailand – Cambodia interconnection

The Cambodia Power Transmission Lines Company Ltd. (CPTL) is a single purpose company established to develop transmission networks. Key features of the interconnection are:

- **Cross-country interconnection:** In 2002, the governments of Cambodia and Thailand signed a PPA by which Cambodia's Electricite du **Cambodge (EDC)** imported power from the Electricity Generating Authority of **Thailand (EGAT)** via a transmission line.

- **Power trade:** Power is purchased from EGAT and imported by EDC into Cambodia from Thailand's Aranyaprathet 115 kV/22 kV substation (15 km inside the Thai border).
- **Financing:** Partially financed by a 15-year term loan from an international consortium of lenders, which include ADB, Exim bank of Thailand, ARCO International and Foreign Trade Bank of Cambodia.

The CPTL line was the first privately owned high-voltage line in the GMS and has been very successful in carrying out its objective. The project was originally to have been developed and built by a JV between EGAT and EDC. EGAT later passed on the opportunity to EGC, listed in Thailand and partly owned by EGAT, but the company passed the opportunity to A.S.K. Co Ltd. In 2005, the opportunity to build the transmission line was awarded to A.S.K. Co., a Cambodian company in the SKL Group. A special-purpose company, CPTL, was created where SKL took 40 per cent direct ownership and A.S.K. took 25 per cent. Two individual investors joined the company as minority shareholders and held 20 per cent and 15 per cent of its shares. After the shareholders' dispute in August 2010, the individual investors purchased 100 per cent of the shares held by the majority shareholders and now own 85 per cent and 15 per cent of CPTL.

The **PPA** established contractual arrangements confirming volumes and prices to be paid by EDC for delivery received from EGAT and CPTL. The **loan structure** included strict controls over the project's bank accounts. Bank accounts specifically dedicated to the CPTL project needed to be opened and maintained both outside the host country (the offshore account) and within it (the onshore account). All amounts payable to the project are required to be paid into the offshore account and may only be withdrawn according to the payment priorities and amount limits specified in the loan document. In February 2013, CPTL successfully **refinanced its debt** in the Cambodian local market and fully repaid its 2008 loans.

3. ASEAN Power Grid

The Association of Southeast Asian Nations (ASEAN) has HAPUA as its head coordination body. HAPUA has Heads of ASEAN power utilities/authorities and consist of ASEAN power grid member countries viz. Myanmar, Vietnam, Laos, Thailand, Cambodia, Malaysia, Singapore, Brunei, Philippines and Indonesia.

Key features

As per the International Energy Association, South East Asia is the third-fastest growing region based on real GDP. The ASEAN Plan of Action for Energy Cooperation (APAEC) intends to enhance energy co-operation by promoting a diversified power mix in the region. Among others, APAEC programme's target is to further develop the **ASEAN Power Grid (APG)**.

APG was conceptualised as the flagship programme, of ASEAN Vision 2020, which aims to ensure energy security in the ASEAN region through investment in interconnections. At present, APG is a collection of interconnected national grids, which trade bilateral exchanges of electricity and it is not a unified regional grid.

The APG aims at ensuring mutually beneficial regional electricity security and sustainability, connecting those countries with surplus power generation capacity to those who face a deficit. A regional grid could help all ASEAN countries meet rising energy demands, improve access to energy services, and minimise the costs of developing energy infrastructure. In addition, the APG could help eliminate inefficient generation, lowering overall costs and making the region more efficient. At present, however, the APG is a collection of interconnected national grids offering bilateral exchanges of electricity, and is not a unified regional grid.

Background

In recognising the potential advantages to be gained from establishing integrated systems, ASEAN established the electricity interconnecting arrangements within the region through APG under the ASEAN Vision 2020 adopted in the Second ASEAN Informal Summit in Kuala Lumpur on 15 December 1997.

Evolution of APG

ASEAN's power sector has been going through various phases of institutional shuffling throughout the years. The following Table illustrates various evolving stages of organising and reorganising **HAPUA**, which acts as overall coordinating body for ASEAN.

Timeline	Key Event
Dec 1997	Heads of ASEAN governments committed to jointly develop ASEAN Power Grid (APG) and Trans-ASEAN Gas Pipeline as a part of the ASEAN Vision 2020
Jul 1999	HAPUA was assigned to develop APG through ASEAN Interconnection Master Plan Study (AIMS)
Apr 2000	AIMS Working Group was established
Jul 2003	AIMS Final Report was endorsed
May 2004	HAPUA Structure was reorganised
Feb 2006	TOR and Work Plan of AIMS TOR and Work Plan of AIMS-II was adopted and the study started
Jul 2011	AIMS -II Final Report was endorsed
Jun 2012	HAPUA Structure was reorganised

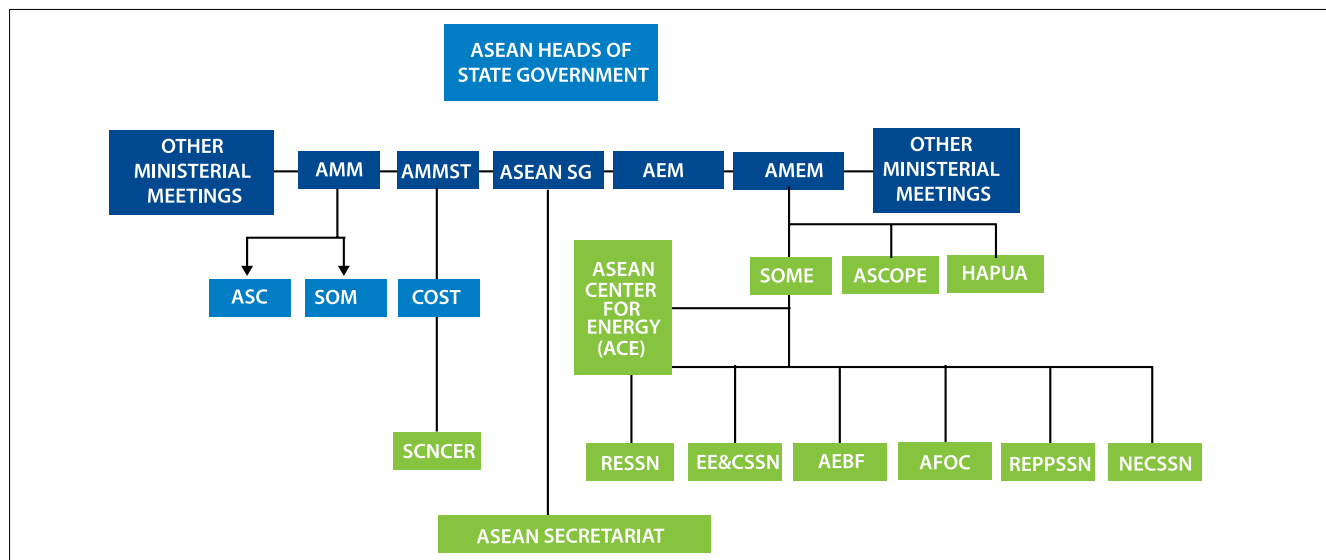
Institutional Framework

The ASEAN Centre for Energy (ACE) was established in January 1999, as an inter-governmental organisation. ACE is guided by a Governing Council composed of the Senior Officials on Energy of the ASEAN Member States (AMS). Established by Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam, ACE is hosted by Indonesia.

On the 26th of May 2015, the Governing Council of ACE endorsed the business plan of an enhanced ACE, which serves as a high-performing institution, a regional centre of excellence that builds a coherent, coordinated, focused and robust energy policy agenda and strategy for ASEAN, with three critical roles:

- As an ASEAN Energy think tank to assist the ASEAN Member States by identifying and surfacing innovative solutions for ASEAN's energy challenges on policies, legal and regulatory frameworks and technologies.
- As a catalyst to unify and strengthen ASEAN Energy Cooperation and Integration by implementing relevant capacity building programmes and projects to assist AMS develop their energy sector.
- As an ASEAN Energy Data and Knowledge Hub to provide a knowledge depository for AMS.

ACE assumes a central role in the ASEAN energy sector. It has been equipped with the complete financial and political backing of the ASEAN governments. ACE handles policy and data concerns that may not be addressed by any of the subsectors. Coordination between ACE and the ASEAN Secretariat is forged by membership of a representative of the ASEAN Secretariat in ACE's Governing Council.

Figure 59 ASEAN Institutional Framework

Key Lessons from the ASEAN Experience

- ASEAN is the best example to consider for overcoming economic and technical challenges for a region, which has widely spread out countries. The ASEAN interconnection has mountainous countries separated by large water bodies e.g. Indonesia's 17000 islands are different from Lao's landlocked area.
- The ASEAN interconnection also covers countries with different power sector regulations, market structure and technical characteristics. There are various projects adopted to accelerate the power grid interconnection projects.
- To accelerate these projects APG Consultative Committee (APGGCC) was formed to function as a facilitator for project co-ordination.
 - HAPUA working groups have been established to carry out studies on cross-border trade. Till date eight of these groups have been established and they cover harmonisation of technical standards, system operations, legal and regulatory, and financial modalities for ASEAN Power Grid.

4. Georgia Turkey Interconnection

An International cross border electricity trading agreement was signed between Georgia and Turkey via Borçka- Akhaltsikhe Interconnection Line ("CBETA") in 2012. Additionally, several other extended electricity trading projects were undertaken, for instance, the AGT (Azerbaijan – Georgia – Turkey) power bridge project, etc.

Key Features

Turkey has been an importer of gas. It receives gas supplies from Russia, Nigeria, Iran and Algeria. Gas fired power plants constitute about half of Turkish Electricity Generation. Turkey had always been keen to diversify its resources. Georgia has abundant renewable power generation sources, such as hydro and wind.

Background of Formation of TETAS

The state-owned electricity trading company TETAS (Tradeco) was set-up under the ambit of EML 4628 in 2001. The primary task of TETAS was to take over all energy sale and purchase agreements of TEDAS (Discom) and TEAS (Trasnc), including energy purchase and sales agreements entered into under Build

Operate Transfer (BOT), Build Own Operate (BOO), and Transfer of Rights (TOR) contracts and also export and import contracts. Also, initially EÜAS (Genco) would sell all the electricity it has generated to TETAS. The idea was that the relatively expensive electricity purchased through BOT, BO, and TOR contracts would be balanced by what was perceived to be relatively cheap electricity purchased from EÜAS and the electricity would be sold under a uniform price to TEDAS. Hence essentially, TETAS would work under an average cost-pricing scheme. It was with this purpose in mind that TETAS was designated to hold all legacy state owned contracts and liabilities – including BOT, BOO and Transfer of Operating Rights (TOOR) contracts as well as existing import and export contracts – and play a key role as a wholesale trader of electricity.

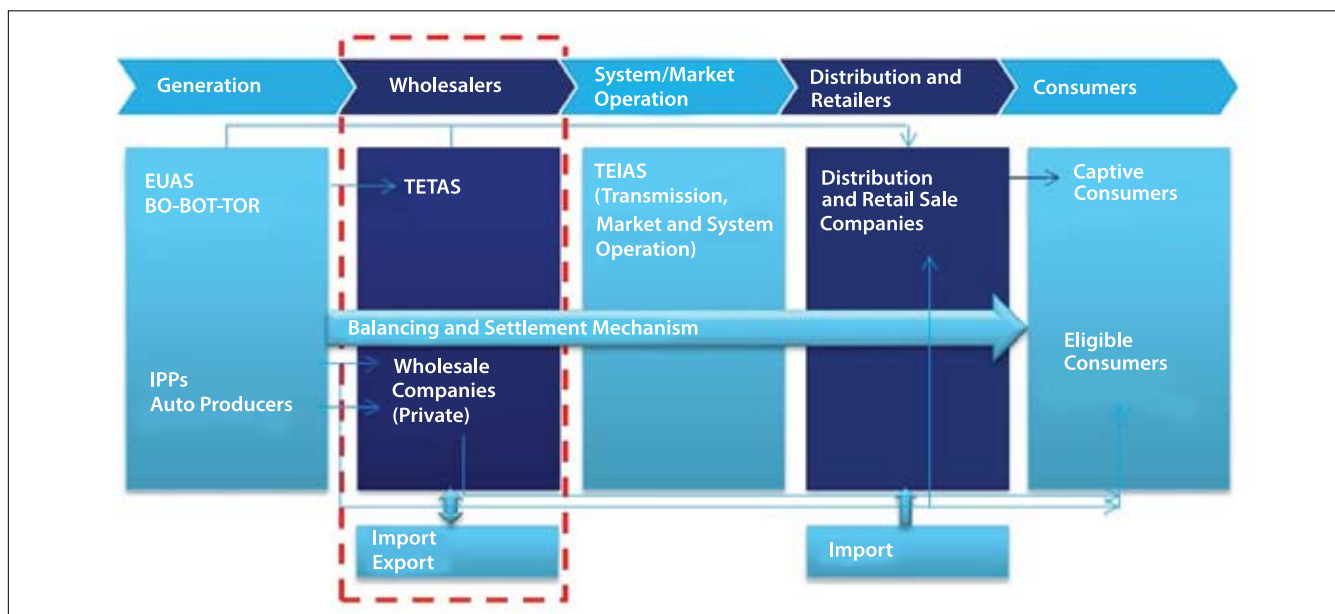
Evolution of Turkish Electricity Markets

Until 1970, electricity generation and distribution was under the control of municipalities in Turkey. But this was a problem, since municipalities were not effectively using the income from such activities for investments and diverting it to other administrative problems. This led to the formation of state-owned Turkish Electricity Company (TEK) in 1970, with the responsibility of carrying out generation, transmission and distribution activities. TEK had statutory monopoly till 1984, when Law No. 3096 established the Mode of Transfer of Operating Rights with the aim of increasing private sector participation. In 1993, TEK was split into two separate state-owned companies (TEAS and TEDAS). Modes of BOT and BOO were established through Law No. 3996 and 4283 in 1994 and 1997 respectively. In 2001, further liberalisation was initiated and the Turkish Electricity Generation-Transmission Corporation (TEAS) was unbundled into three companies responsible for different sub-sectors with Electricity Market Law (EML) 4628. EUAS (Generation), TEIAS (Transmission) and TETAS (Wholesale) are the companies responsible for these sub-sectors. The first version of the balancing and settlement regulation (BSR) was actually first adopted in November 2004.

Institutional Framework

The EML provided a fairly broad and detailed framework for the organisation of markets and activities in the electricity industry. Under the new regime, public assets were legally unbundled into separate public companies: TEAS was separated into EUAS, the Electricity Generation Corporation, TEIAS, and TETAS, Turkish Electricity Trading and Contracting Corporation.

Figure 60 Turkish Electricity Market-Institutional Framework



TETAS is governed by a Board consisting of four members and a Chairman. The General Manager reports to the Board and has the following committees under it:

- Inspection Board
- Legal Counsel and
- Training and Administrative Affairs

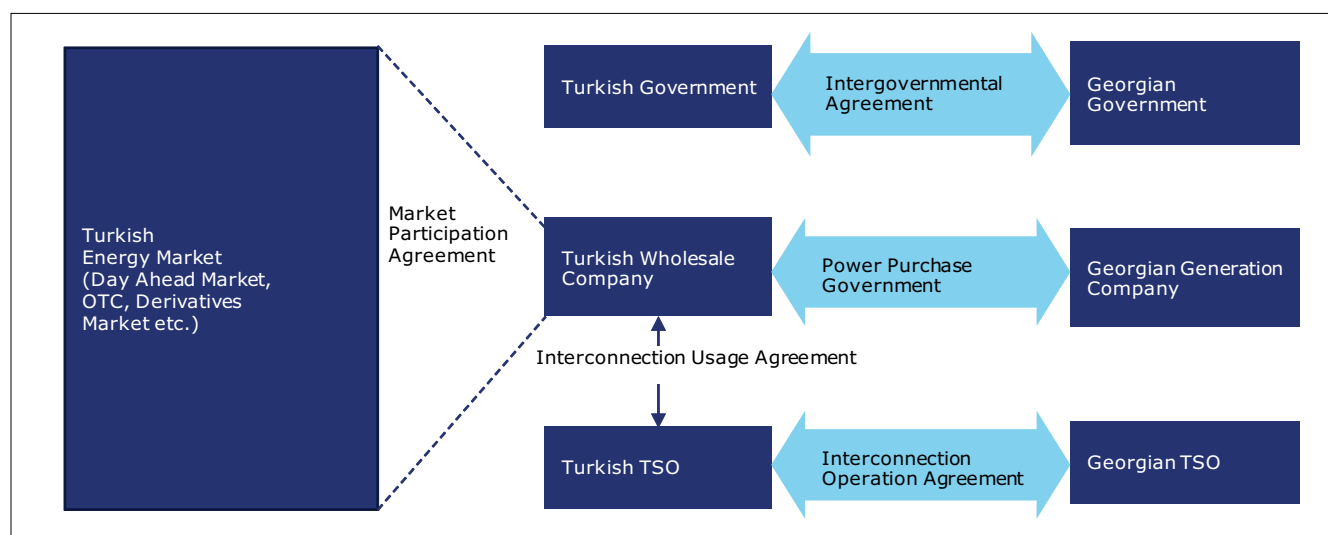
Mechanisms and an Outline of Procedures That Enables Georgian HPPs and Traders to Sell Energy with Turkey Off-Takers

Since a Day Ahead Market does not yet exist in Georgia, implicit auction and market coupling will not be possible between Georgia and Turkey in the short term. Therefore in this section, long term bilateral energy contracts between Georgian exporters/importers and Turkish importers/exporters will be discussed. At present there is no regulatory limitation for off-take contracts in the Turkish side. For Georgian traders to sell electricity to Turkish off-takers:

- Georgian HPP's should take into consideration the available transmission capacity in interconnection and get the right for capacity usage.
- Georgian HPPs should enter into a trade agreement with a Turkish counterparty, which is registered as a Market Operator and has licensed balancing units in Turkey.

The following Figure-6I shows agreements that must be signed (especially for the Turkish side) for trade with Georgian market participants.

Figure 6I Agreements Required to be Signed (especially for the Turkish side) for Trade with Georgian Market Participants



Key lessons from the Turkey-Georgia experience

- **Separate Licensing Requirements:** The EML provided for a wide variety of activities, including generation, wholesale trade, transmission, distribution, and retail supply. Entry into any of these activities requires obtaining a license, which would be granted by EMRA presumably to any investor that met the conditions in the law. Hence the supply side was liberalised through a licensing regime.

- **Avoidance of Market Power:** The EML stated that total market share of generation facilities operated by a particular private sector generation company and its affiliates could not exceed 20 per cent of total installed capacity in Turkey in the preceding year. Such restriction applies to the wholesale trading (max. 10% of total domestic electricity consumption) companies as well.
- **Increased Competition through New Market Models:** Significant progress has been achieved in establishing a balancing market that can provide more correct signals about the scarcity price of electricity. The establishing of the balancing market was also instrumental in attracting new private investment into the industry. In that sense, to the extent that the purpose of restructuring was to relieve the state budget of the burden of electricity investments, one should admit a degree of success. In effect, compared to the 1990s, the new model (post EML-2001) has been successful in attracting private investment for distribution under competitive conditions, without granting any concessions, subsidies, or government guarantees.

5. Gulf Cooperation Council (GCC)

The GCC comprises interconnections between Kuwait, Saudi Arabia, UAE, Bahrain, Oman & Qatar.

Key Features

The Gulf Cooperation Council Interconnection Authority has commissioned a 400-kV super grid that connects the electrical power networks of the Arabian Gulf Cooperation Council (GCC) countries of Bahrain, Kuwait, Qatar, Oman, United Arab Emirates (UAE) and Saudi Arabia. This interconnection enables electrical energy exchange and emergency support among these countries.

Physical infrastructure between countries – 50 Hz AC interconnection between Kuwait, Bahrain, Qatar, UAE and Oman with a back-to-back HVDC (High Voltage Direct Current) interconnection to the 60 Hz Saudi Arabian system.

Background of GCC Interconnection Project

- Huge oil and natural gas reserve and vertically integrated utilities

Other than Bahrain, the countries participating in the GCC electricity interconnection project are well endowed with oil and/or natural gas resources. Saudi Arabia, Kuwait and the UAE have substantial oil reserves with associated natural gas. Qatar holds the third-largest gas reserves in the world and is the world's top exporter of natural gas as LNG. Before the electricity sector reform, power generation, transmission and distribution activities were undertaken by state-owned vertically integrated utilities in all the countries.

- Increasing wealth in 1980s – driver for economic growth and increased electricity demand

With increasing world market prices for oil, oil products and natural gas, the wealth of the six countries has grown. Instigated in May 1981 with the main objective of developing and solidifying the political, economic and social ties among the member states, the GCC countries were opting for energy intensive industries (such as petrochemicals, steel, aluminium and cement), as well as focusing on other industries such as the real estate and tourism sectors. All these factors along with a high birth rate led to a fast-growing demand in electricity. As a result, large investments were required in electricity generating capacity.

- Huge investment needs leading to electricity sector reform and liberalisation

Realising the massive investments required to meet and maintain such demand, most GCC countries (except Kuwait) initiated reform of their electricity sectors and liberalisation of electricity markets. The key reform efforts have focused on unbundling of the sector and attracting private investment.

Evolution of GCC Electricity Interconnection

■ Conception of the project in 1981 and initial feasibility studies

The GCC Interconnection Project was originally conceived in 1981 as a means to help develop closer economic and political ties among the six countries with a signed agreement between the GCC countries to interconnect their networks. At that time various committees were formed with representatives from the relevant Ministries of Electricity and Water of each state to study the prospects of linking their independent power systems. The project was stalled for over two decades, with intermittent activities including feasibility studies and updates of feasibility studies in 1986 and 1992 and the resumption of committees and low-profile meetings.

■ Establishment of GCC Interconnection Authority (GCCIA) in 2001

The project took off in earnest with a royal decree issued in 2001 to formally establish the GCC Interconnection Authority (GCCIA), located in Damman, Saudi Arabia, to be managed by a Board of Directors represented by members from the six states. A new feasibility study was undertaken by GCCIA in 2003 and a recommendation was made to the GCC leaders to move ahead with the project. In May 2004 the GCC countries agreed to finance the project, and the GCCIA then moved ahead with tenders and construction contracts.

■ Reserve capacity sharing and minimise peaking plant investment – primary objective behind GCC electricity scheme

The GCC electricity scheme was envisaged primarily to allow participating countries to share reserve capacity to minimise overall investment in peaking plant. Reserve capacity sharing refers to the use of the interconnectors to provide mutual support in the event of unplanned plant outages. The feasibility studies justified the interconnection scheme on the basis of savings in reserve generating capacity. Active trade in electricity through the interconnector is a secondary function.

■ Phases of the project

The GCC Interconnection Project is divided into three phases:

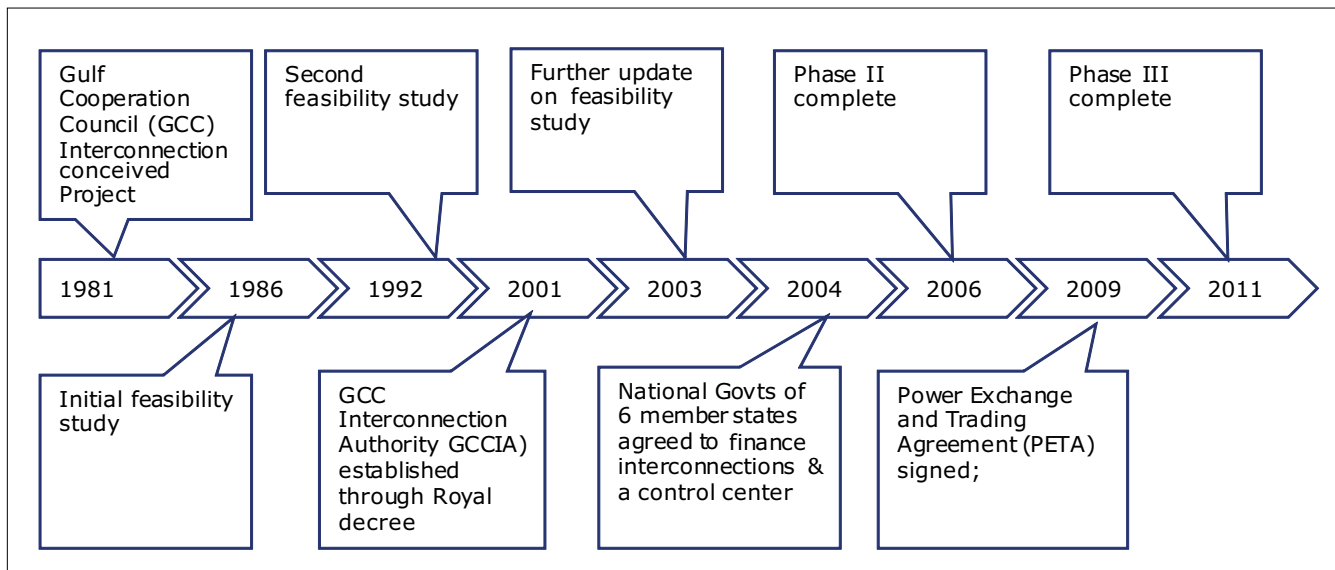
Phase-I Interconnection of the power grids of the northern states of Kuwait, Saudi Arabia, Bahrain and Qatar to form the GCC North Grid.

Phase-II Formation of GCC South Grid by integrating the isolated networks of the seven emirates of the UAE to form the Emirates National Grid (ENG) and creation of Oman's Integrated Northern Grid.

Phase-III Interconnection of the GCC North Grid with the South Grid, linking Oman and UAE with the other four GCC countries.

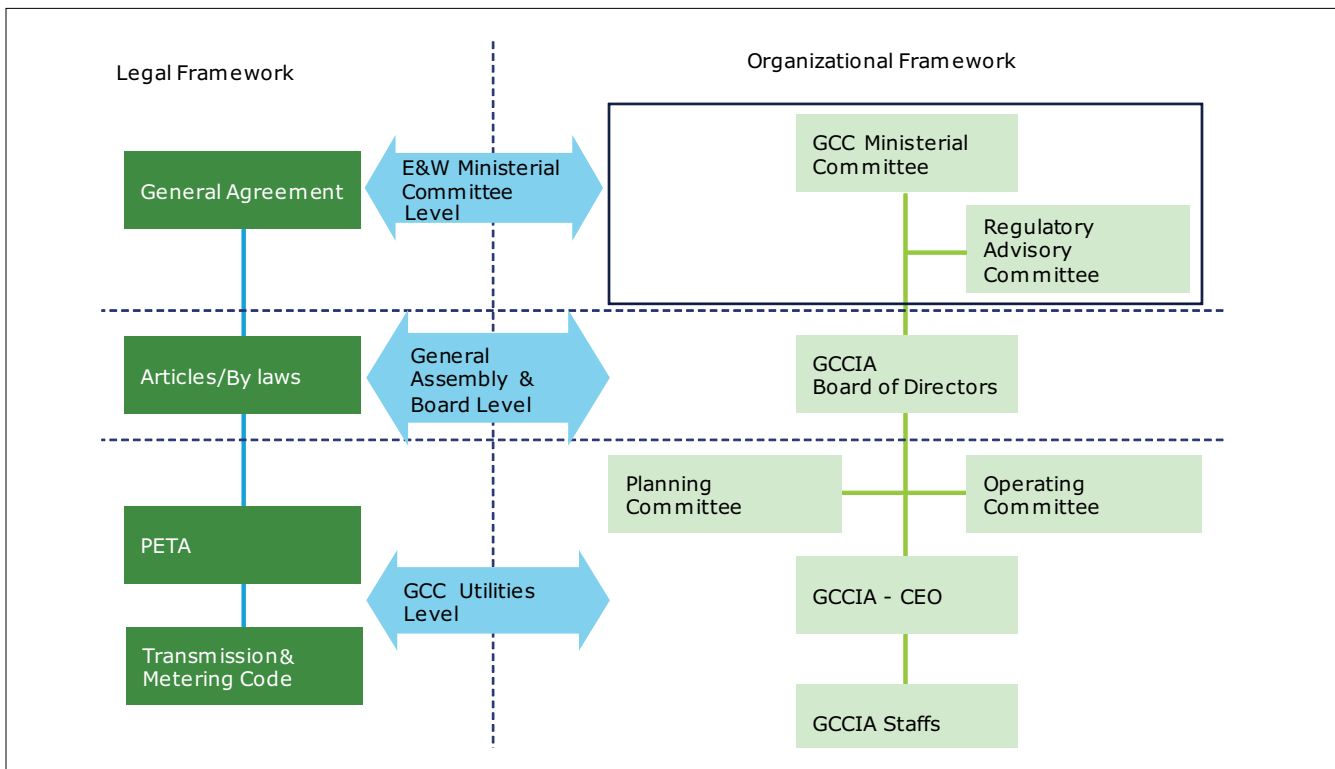
Interconnector Control Centre - To control operations, GCCIA established a new interconnector control centre equipped with supervisory control and data acquisition (SCADA) and energy management system (EMS) facilities in Ghunan, Saudi Arabia.

Figure 62 Evolution of GCC Interconnection



Institutional Framework

Figure 63 Institutional Framework of GCCIA



Ownership: GCCIA is a joint stock company owned by the electricity ministries in the six GCC states. Financing for the approved interconnection scheme was obtained from national governments, and GCCIA's administration costs are funded on similar sharing basis. The GCC Ministerial Committee comprises of Ministers of Electricity and Water from each of the member countries. This committee, with inputs from the Regulatory Advisory Committee, guides the GCCIA Board of Directors on its policies and procedures.

The Board members are nominated by the six member countries. The GCCIA Board together with the planning committees and the operating committees (also nominated by GCC member states) form a General Assembly, which makes decisions on codes and agreements governing trade among member utilities and governing the activities of the GCCIA itself.

Key lessons from GCC experience

- **Two-layered legal framework governing electricity trade among member states:** A General Agreement, signed at the ministerial level of the member states, sets out the rules and regulations governing the high-level relationships among the member states in relation to the interconnection scheme. The Power Exchange Trading Agreement (PETA), signed by the transmission entities in member countries, governs the terms and conditions, connectivity and usage, technical and commercial rules of the electricity trade.
- **Ownership and staffing of GCCIA on sharing basis by member states:** The project implementing and operating agency, GCCIA, is a joint stock company owned by the electricity ministries in the six GCC states. GCCIA is headed by a Ministerial Committee, comprising of Ministers of Electricity and Water from each of the member countries. The Committee guides the GCCIA Board of Directors, who are nominated by the member states. Joint ownership and staffing of GCCIA has helped in coordinated project implementation and operation.
- **Installed capacity obligation and interconnector capacity allocation:** Each member state is obligated to maintain a specified level of generation capacity as the reserve capacity. The member states are assigned transmission rights for sharing reserve capacity. GCCIA determines the share of capacity for each member country in the interconnector link. This fulfils the purpose of the interconnector project with the member states acting as one integrated region.
- **Interconnector capacity auction to encourage further electricity trade:** The opportunity costs for natural gas and oil based power generation in the member states are low, which inhibits cross border electricity trade. Hence to encourage electricity trade among member states over and above reserve capacity sharing, GCCIA auctions interconnector capacity. Parties trade under bilateral contracts of different tenures.

6. West Africa Power Pool (WAPP)

The major energy resources available for electricity production in West Africa are crude oil, natural gas, hydropower, and on a smaller scale, coal and renewables, with Nigeria having the highest proven reserves of crude oil in Western Africa. The region is expected to have 23,000 MW worth of hydropower potential, of which only 20 per cent is currently utilised. Coal reserves (Total Recoverable Coal) in West Africa are estimated to be 287 million short tons with approximately 210 located in Nigeria and the rest in Niger. As on Oct 2015, WAPP had 26 members. WAPP is a specialised institution of the ECOWAS. WAPP is made up of public and private generation, transmission and distribution companies involved in the operation of the electricity in West Africa. It covers 14 of the 15 countries of the regional economic community.

a. Key features

The WAPP region covers around 5 million sq. km and had an estimated population 335 million in 2014, roughly one-third of sub-Saharan Africa's total population. The West African region grew at a moderate pace of six per cent in 2014. WAPP is a voluntary organisation with membership open to any entity, public or private, which owns/operates generation facilities of 20 MW or greater, distributes electricity, owns/operates transmission facilities, or has an interest in the electricity sector in the West African region.

WAPP member regional economic community: Benin, Côte d'Ivoire, Burkina Faso, Ghana, Gambia, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo

Background of WAPP

WAPP was founded in the year 2000 as a cooperation agreement between 19 electricity companies in 14 of its member countries in Western Africa. It was founded with the support of ECOWAS with the mandate to establish a reliable power grid for the region and a common market for electricity. The World Bank European Investment Bank (EIB) and African Development Bank (AfDB) are major investors for the cause.

WAPP targets the integration of the national power systems of its members into unified regional electricity system so as to provide citizens of the region with a stable, reliable and affordable electricity supply.

WAPP's key objectives are to:

- Increase investments needed for power grid expansion in the region, with emphasis on the implementation of cross-border projects that will enhance supply, reliability and reduce costs for end users.
- Create an attractive environment for investments in order to facilitate the funding of power generation and transmission facilities, including creating a common operating standard, rules and a transparent and reliable mechanism for the swift settlement of power trade transactions.
- Formalise official and extended collaboration in the region to expand power generation, transmission and trade.

Evolution of WAPP Electricity interconnection

In 2010, ECOWAS founded the ECOWAS Regional Centre for Renewable Energy and Energy Efficiency Centre (ECREEE). The regional market development is being carried out in three stages, each stage has pre-defined characteristics and requirements prior to being implemented.

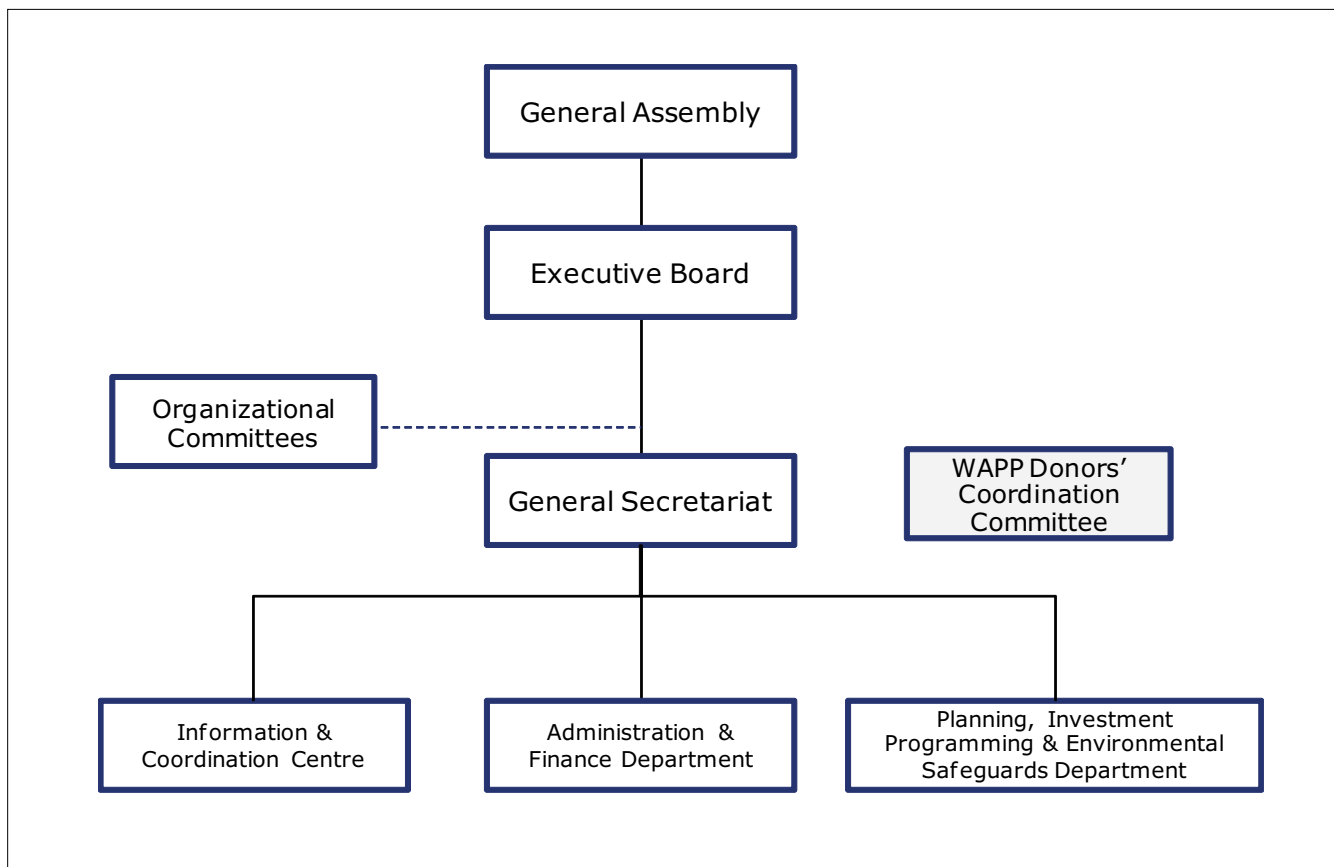
The ECOWAS Treaty specifies the governing principles related to promotion, cooperation, integration and development of the energy sector of the member states of the ECOWAS. The Authority of Heads of State and Government aims at ensuring energy security, diversifying primary energy sources and promoting increased access to energy. The ECOWAS Energy protocol provides the legal framework for long-term cooperation among the members based on mutual benefit. It guarantees free exchange of energy, energy equipment and products between member states. The first version of Regional Market Rules has been approved by the ECOWAS Regional Electricity Regulatory Authority (ERERA). The Regional Market Rules (RMR) govern the commercial trading of all electricity across international borders between participating countries in WAPP.

- **Market Phase I:** The 1st phase starts when the approved RMR become effective. ERERA takes into consideration the Executive Board of WAPP's recommendation for Phase 2 to begin. The main condition for Phase 2 is the availability of sufficient transmission and infrastructure development interconnecting the member countries. During Phase I, the RMR provides for:
 - Trading is carried through bilateral agreements using approved model contracts, which can be short, medium or long-term agreements.
 - Transmission pricing is agreed to between parties involved in a contract for existing contracts while pricing for new contracts comes into effect after the approval of the Regional Transmission pricing methodology.
 - ERERA is responsible for dispute resolution and enforcement of RMR etc.
- **Market Phase II:** For Phase 2, ERERA together with the Execution Board have to establish the date for the initiation of the new market phase after all the conditions precedent in the Roadmap for Phase 2 have been fulfilled. The RMR provides for:
 - Bilateral trading with transit through third countries, based on standard commercial contracts
 - Short-term exchanges carried out through Day Ahead Market through the regional optimisation model.
 - i. Transmission pricing is regulated by ERERA
 - ii. The SMO operates with the responsibilities established by the RMR.
- **Market Phase III:** The conditions established in the Roadmap for Phase 3 have to be fulfilled for its execution. During Phase 3, the RMR provides for:
 - The operation of a liquid and competitive market is made possible by availability of enough regional transmission capacity and reserves.
 - The countries voluntarily put together their resources under a common optimisation system.
 - Trading different products, integrating other markets: market for some ancillary services, financial products.

Institutional Framework

In total, WAPP has four governing bodies: the General Assembly, the Executive Board, the Organisational Committees and the General Secretariat.

Figure 64 WAPP Organisational Structure



Key lessons from the WAPP experience

Unlike other power pools in Africa, WAPP is responsible for developing new infrastructure. The WAPP Articles of Association require WAPP to ensure the full and effective implementation of the WAPP Priority Projects.

■ Open access and competitive policies

Provisions regarding competition policies are mentioned in Article 6 of the ECOWAS Energy Protocol. It ensures that each member abides by the laws applicable in its jurisdiction and takes appropriate measures to address unilateral and concerted anti-competitive conduct in Economic Activity in the Energy Sector. The law states that *“Contracting Parties agree that open and non-discriminatory access to power generation sources and transmission facilities encourages investment in generation and distribution facilities, and thereby increases competition in such sub-sectors of the power industry, in turn leading to reduced cost for power. Contracting Parties agree therefore to make accessible for all other Contracting Parties and Investors, without any discrimination, power generation sources and transmission facilities sited within their Areas.”*

■ Environment related policies

Article 19 of the ECOWAS Energy Protocol underlines the provision regarding minimising environmental impact by market players and states that they must *“strive to minimise in an economically efficient manner harmful Environmental Impacts occurring either within or outside its Area from all operations within the Energy Cycle in its Area, taking proper account of safety.”*

■ Contract enforcement and dispute resolution

Article 40 of the RMR provides the provisions to resolve disputes, which apply to:

- Any dispute between SMO or a transmission service provider or any participant, which arises in relation to the RMR.
- Disputes relating to an order of denial by the SMO of authorisation to any person to participate in the regional market.
- PPAs operating in the market may have their own dispute resolution procedures and these provisions will prevail over these procedures.
- Main provisions of ECOWAS Protocol:

Table 25 Articles of ECOWAS Protocol

Article	Provision
Article 6	Open access to power generation and transmission facilities.
Article 7	Freedom of transit without discrimination, even in case of dispute, transit must be guaranteed until the conclusion of the dispute resolution.
Article 9	Access to national capital market on a basis no less favourable than that for the national companies.
Article 11	Permit investors to employ any key personnel they want regardless of nationality and citizenship.
Article 12	“No less favourable treatment” principle is applicable to restitution, indemnification, compensation or other settlement following upon war or armed conflict, state of national emergency, civil disturbance, or other similar events.
Article 13	Nationalisation or expropriation is forbidden in the area, except when it is carried out of public interest. The amount of compensation is based on market value before the decision and includes interest for any payment delay.
Article 14	Guarantee the freedom of transfer, into and out of the area without delay and in a freely convertible currency, of capital and payments related to the investment activity.

7. Summary of International Experience

Regional cooperation in the power sector generally commences with the negotiation of long-term bilateral PPAs and supported by the development of transmission interconnectors and as the electricity trade grows, the interconnection capacity increases and the CBET concept expands to include more countries. Subsequently, short-term markets develop to take advantage of trading possibilities arising from non-coincident load profiles and different cost structures. Over time, the electricity trade develops common technical and economic rules, paving the way for regional electricity markets.

The experience from these regional power pools shows that bilateral transactions provide a useful basis for expanding future trading. These bilateral arrangements are supported by inter-country agreements in the form of MOUs, treaties, firm supply contracts, promotion of exported oriented projects through international investments etc.

Global experience of investments in the CBET projects shows funding from donors, bilateral/multilateral agencies both regional (viz. Asian Development Bank, AfDB etc.) and global (viz. the World Bank, IFC,

etc.), national utilities, private sector participants: developers, contractors, private equity funds and market-based lenders.

With time countries started to realise the importance of promoting export oriented projects. Both generation projects and interconnectors were established keeping in mind future regional integration.

The various ingredients and mechanisms of trade relevant to investments include:

i. **Government to Government Agreements and Treaties**

In CBET, it is very important to ensure that respective national governments are completely committed towards CBET within the region. Another important aspect in CBET is to ensure that country specific policy and regulatory provisions are transparent and clear resulting in greater investment certainty. The Energy Protocol signed by member countries in the WAPP entails detailed provisions for CBET. The existing agreements/treaties have been instrumental in reducing the barriers w.r.t CBET. The institutional framework for power interconnection among the GMS is important for drawing lessons for CBET. An Electric Power Forum (EPF) was constituted under the GMS Economic Cooperation Programme to serve as an advisory body on sub-regional power projects and issues. The EPF reported to the Ministerial Conference and the respective governments on treaties and protocols. The inter-governmental agreement provided a framework to implement the Policy Statement on Regional Energy Trade in the GMS.

The CLSG interconnection project in WAPP is proposed through establishing the Regional Transmission Company (RTC) which will own, maintain and develop the transmission line, and minimises the direct involvement of governments and stakeholders and renders attempts at potential interference by third parties more transparent. This is critical because CLSG countries are fragile states that face political economy constraints. The CLSG Ministers of Energy have endorsed a treaty for the setting up of RTC, thus confirming their commitment to the project.

ii. **Financing Structure**

The risk profile of the projects also determined the source and availability of funds/financing from the private sector specifically. Several measures to address/mitigate such risks for instance provisions like Partial Risk Guarantees⁴⁵, Export Credit Agreement, or Export Credit Agency and Guarantee⁴⁶ have also been incorporated in the PPAs (GMS).

In GMS, generation and transmission projects have been planned and built by consortiums of private companies and governments, and power deals have been negotiated on a bilateral basis.

The financing structure of the **Nam Theun 2** project (export of power from Laos to Thailand) in **GMS** provides an example of an export oriented project, which has been financed through multiple agencies i.e. international loans from a mixture of the private and public sector investors, IFIs, bilateral agencies, commercial banks, and export credit agencies. The percentage share of different agencies in Nam Theun 2 is 35 per cent by Electricité de France, 25 per cent by Electricity Generating Public Company (EGCO) of Thailand, 15 per cent by the Italian Thai Development Public Company Limited (ITD) of Thailand, and 25 per cent by the Government of Lao PDR. The consortium was responsible for building the facility and for negotiating the bilateral PPA with EGAT, the sole off-taker.

Financing of SAPP is at two levels. Regional infrastructure investments are financed and undertaken by the utilities involved or by special-purpose companies set up to execute the projects (e.g., MOTRACO and WESTCOR). The financing requirements of SAPP as an organisation are covering the costs of the SAPP Coordination Centre. In SAPP, the Batoka 1600 MW is a run off the river hydropower project

on the Zambezi River with capacity to be shared equally between Zambia and Zimbabwe. The project is targeting the regional market.

With respect to ownership, all of the generators and interconnectors in the SAPP region are in public ownership, with the assets being reflected in the books of the national utilities. In some cases, SPVs have been formed to execute joint projects (such as MOTRACO, which is jointly owned by Eskom, SEB and EDM).

iii. Political Risk Mitigation

The World Bank Group has provided Partial Risk Guarantee (PRG) and MIGA guarantees to cover commercial lenders across the globe, for instance Nigeria, Kenya, Uganda, Maldives, Senegal etc. PRG covers lenders against the risk of a public entity failing to perform its obligations w.r.t a private project; it ensures payment in case of a default resulting from non-performance of contractual obligations undertaken by governments or their agencies in the private sector. It typically covers outstanding principles and accrued interest of a debt tranche. In SAPP, the World Bank and some national export credit agencies offer political risk guarantees. Some African countries have offered sovereign guarantees, e.g. Tanzania for IPTL, Nigeria for AES Barge, Cote d'Ivoire for Azito and Ghana for Takoradi II projects.

The AfDB funded the Nigerian power sector with a \$184.2m African Development Fund (ADF) partial risk guarantee for Nigeria Bulk Electricity Trading (NBET) and a \$3.1m ADF loan for capacity building. The PRG will guarantee NBET's contractual obligations to independent power producers (IPPs). Similarly, AfDB has provided Kenya's Lake Turkana Transmission project with a PRG worth US\$27mn.

Mitigation instruments have been facilitated by USAID for Hydropower Investment Promotion Project in Georgia for export to Turkey. These include:

- **War and Civil Disturbance-** Order and military action, political risk insurance
- **Expropriation-** Diplomatic ramifications, reputational impact of government expropriation, political risk insurance
- **Breach of Contract-** Dispute resolution mechanism, contracts should be structured fairly so that incentives to breach contract should be eliminated.

iv. Financing Risk

In SAPP, WAPP, GMS Regional Planning w.r.t prioritisation of projects in the regional master plans, identification and development of export oriented projects is linked to the development of the transmission lines.

Risk related to weak local financing mitigated through syndicated loans from several local banks - Emerging Africa Infrastructure Fund provides long-term loans denominated in US dollars or Euros on commercial terms for infrastructure projects in Africa (Rabai Power Project in Kenya).

JBIC (Japan Bank for International Cooperation) facility for African Investment provides lending in hard currency; equity investments; guarantees for loans of private banks; local currency financing for projects (financing for Eskom's Northern Grid Transmission Project).

v. Commercial Terms/PPA Requirements

Most of the existing contracts are still dominated by long term PPAs. The terms and conditions are bilaterally negotiated including pricing, dispute resolution, settlement etc. In SAPP, these bilateral contracts are complemented by short-term contracts in day ahead and intra-day contracts. Further, the rules of power-pool operations have helped member utilities to ensure mutual support in emergency

conditions and improve reliability by sharing capacity reserves. In other regions also like WAPP, GMS long-term bilateral contracts exist with mutually decided provisions. Despite the fact that agreements are bilaterally negotiated and provisions are mutually agreed upon it is important to ensure that PPAs are standardised and common operating guidelines including transit rules, dispute resolution mechanisms, settlement mechanism etc. are framed on a regional level.

vi. Dispute Resolution And Settlement Procedures

The review of various power pools/regions (SAPP, GMS, WAPP, and Georgia – Turkey interconnection) shows that dispute resolution and settlement procedures are part of the inter-country agreements and treaties. Further, dispute resolution procedures are also part of PPAs, which are bilaterally negotiated.

Across pools the most preferred method of dispute settlement is amicable settlement between the parties. In case the parties fail to resolve disputes amicably then it is further referred to the governments/ministries of the parties. The last resort of settlement is through international arbitration as per UNCITRAL rules/procedure as mentioned in the agreements/treaties.

In WAPP, ECOWAS has introduced dispute resolution mechanisms and incorporated Alternative Dispute Resolution (ADR) practices within its court. ADR includes dispute resolution processes and techniques that act as a means for disagreeing parties to come to an agreement short of litigation. It is a collective term for the ways that parties can settle disputes, with (or without) the help of a third party.

vii. Currency Convertibility Risk

MIGA offers coverage for non-commercial risks including currency inconvertibility and transfer restrictions in emerging economies of Asia, Africa, Middle East to protect against losses arising from an investor's inability to legally convert local currency (capital, interest, principal, profits, royalties, and other remittances) into hard currency (Dollar, Euro or Yen) and/or to transfer hard currency outside the host country where such a situation results from a government action or failure to act.

In SAPP, currency risks have been dealt with in several power projects through USD denominated PPAs. **The Nam Theun project in GMS has a** concession agreement, which includes clauses to entitle the NTPC to use bank accounts in the project currencies in Laos and a number of other countries. It also requires the Government of Laos to direct the Bank of Laos to enable foreign exchange transactions.

Annexure 4: CBET Project Risks and mitigation measures

Investment framework (Figure-65) for promoting private investment in hydro and CBET projects has been studied on following 4 broad categories with their issues and mitigation measures as follows:

Figure 65 Investment Framework for Promoting Private Investment in Hydro and CBET Projects

	Issues	Political and country	Policy and Regulatory	Project Development	Off-taker
		- Political instability - High transaction cost - Transparency & predictability - Non-discrimination - Change of law - Public governance	- Contract enforcement - Alternate dispute settlement - Administrative process - Legal stability and predictability	- Site identification and resource assessment - Land acquisition, environment, R&R - Off-taker risk - Skilled manpower	- Currency risk (instability, exchange rate, convertibility) - Predictable tax policies - Corporate governance - Liquidity issues, debt financing
	Mitigation	- Political insurances - International investment agreements (BIT, FTA) - BOO, and BOOT business models under PPP - Guarantee against expropriation	- Standardize contract documents - Alternative dispute resolution mechanisms - Large role of inter-governmental body - Capacity building of public institutions	- Standard technology specific project development guidelines - Single window clearance - Regional skill development center	- Currency hedging (Currency swaps, options, forward contract) - USD denominated PPA - Stable tax regime - Corporate governance

8. Key risk areas, their description, risk bearer and impact

These risk categories are summarised in the following table with their definition, constituents, risk bearer and level of impact of these risks.

Table 26 Summary of risk categories

S. No.	Risk type	Risk description	Risk bearer	Risk impact
I.	Political Risk: Political risk is related to uncertainties introduced by government actions such as seizing asset or breaching the contract. This also refers to the sovereign risk when government itself is borrower of funds. Any arbitrary limits imposed by government on currency transfer may also be inferred as political risk. Political risks have long term implications on investment climate of the country. These risks are closely watched by international investors.			
a.	Sovereign risk	Sovereign risk deals with the risk related to investing in a country or providing fund to its government in the following ways: - Risk associated with government's defaulting on its direct (sovereign debt) or indirect (guaranteed) foreign currency obligation. - The risk that a central bank may impose foreign exchange regulations which results in reducing the value of foreign exchange contracts	Investor	Investor: High

S. No.	Risk type	Risk description	Risk bearer	Risk impact
b.	Expropriation Risk	Refers to the case when Government of host country takes away private property through nationalisation, seizure of assets or other means without consent or paying appropriate amount to the owner/ investor	Investor and project developer	Investor: High Project developer: High
c.	Breach of contract by host government	This refers to the case where host government, government entities/state-owned enterprises does not perform as per contractual agreement by breaching or repudiating the contract	Investor and project developer	Investor: High Project developer: High
d.	Currency inconvertibility/ transfer restrictions	Arises in case where Government can impose various restrictions on currency conversions as follows: • New, more stringent foreign exchange regulations • Delay or inaction by exchange control authority to approve an application for hard currency • Unlawful action by host government resulting in blocking of repatriation fund Discriminatory action by host government resulting in inability to convert or transfer local earnings.	Investor	Investor: High
2.	Regulatory and policy risk: Regulatory and policy risk deals with the risk arising from government or regulators' action exercising their legislative functions. These actions may not be illegal from host countries' view point but they could be detrimental to the business prospects of foreign investors. Regulatory risk can be approximated as potential loss of regulated revenues resulting from arbitrary changes to an agreed on or pre-specified legal framework governing the regulations of infrastructure investments. This may rise due to arbitrary changes in law, regulations, licenses or contracts and may impact tariff-setting regimes, formulae or parameters, or various performance requirements including investment obligations, quality and extent of service, environmental and safety performance etc. that have financial implications.			
a.	Contract enforcement	Refers to weak institutions responsible for contract enforcement. Contract enforcement risk arises when one party cannot enforce contractual terms in case of other party defaulting on its contractual obligations	Investor, project developer and buyer	Investor: High Project developer: High Buyer: High
b.	Arbitration and dispute resolution	Refers to weak or non-independent legal institutions in the country. This may arise due to political interventions or biased decision making by the courts	Investor, project developer and buyer	Investor: High Project developer: High Buyer: High
3.	Project development and off-taker risk: This risk refers to risks associated with land acquisition, environment and R&R processes. Also, for CBET, this project is more on account of each SA country having different regulations.			
a.	Land acquisition risk	Land acquisition is tricky in many SAC as process of land acquisition is cumbersome and time taking due to involvement of various government bodies and private owners of land who may not be willing to sell their land	Project developer	Project developer: High

S. No.	Risk type	Risk description	Risk bearer	Risk impact
b.	Environment and R&R clearance risk	Environment and R&R clearances play a crucial role in hydro projects success. As these clearances are stringent they may incur extra time and cost and sometime they may also instigate social protest	Project developer	Project developer: High
c.	Off-take risk	Refers to risk when off-take of power is not possible due to various reasons such as non-connectivity to the generation plant, buyer defaulting on PPA due to other cheaper options etc.	Investor and project developer	Investor: High Project developer: High
4.	Commercial risk: Relates to risk associated with commercial aspects of business such as change in currency rate, interest rate and tax policy of that sector.			
a.	Currency risk	Currency risks arise due to difference in currencies in the investor and investee countries. These risks could be related to sudden devaluation in one currency, change in regulation and convertibility or acceptance. There is always a risk of exchange rate volatility for investors when the functional and the presentation currencies are different. Currency risks are risks that arise from changes in the relative valuation of currencies. Thus, without any material change in firm's activity its profit may vary depending on the fluctuation in the exchange rate of currency.	Investor	Investor: High
b.	Interest rate risk	Interest rate risk exposure may be described as direct and indirect exposure. Direct risk has mainly two forms: • Reinvestment risk (Impact of change in interest rate on a firm's future cash flow) • Price risk (Impact of a change in interest rates on the value of a firm's assets and liabilities. Firm's security prices also change with change in interest rate) Indirect risk exposure relates to the future actions of market participants as in case of fall of interest rates causes borrowers to seek new loans and settle old ones.	Investor and project developer	Investor: High Project developer: High
c.	Tax policy risk	Changes in taxation can affect the present value of investment projects and thereby the value of the investments. Any abrupt change in tax policy is detrimental to the profitability calculation assumed by investors while committing the capital.	Investor and project developer	Investor: High Project developer: High

9. Risk mitigation measures adopted in different pools

Based on the risk framework, international experience and stakeholder consultation in India, Nepal and Bangladesh, few key themes have been identified which will help in minimising the investment risks for investors in hydro and CBET projects. Following table illustrates these key themes with key mitigation instruments features:

Table 27 Risk Mitigation and Potential features of mitigation instruments

Key risks	Enablers to mitigate risks	Potential features of mitigation instruments
Political risk	Guarantee against political and country risks	• Upfront guarantees by government against nationalisation, breach of contract, sovereign risk • Stabilisation and freezing clause in the contract to save investor against potential regulatory changes • Political risk insurance, partial risk guarantee backstopping by host government
	Smooth FDI norms and process including easy exit options and repatriation limits	• 100% FDI through automatic route in South Asia • Special nodal agency/cell in each member country to handle FDI investment by SAARC country investors • Policy clarity for investor on exit and repatriation • Easy option should be encouraged • Repatriation of profits, dividends and disposal receipts should be allowed
Policy and Regulatory risk	Contract enforcement and dispute resolution	• Neutral (3rd party international) venue for arbitration • Institutional strengthening • Standard contract documents for goods procurement, labor employment etc.
	Creating and capacity building of regulatory institutions for CBET	• Development of structure, functions and institutional mechanisms to resolve regulatory issues related to project development and operation, electricity exchange and trade etc. in case of absence of regulatory mechanism. • Incorporation of suitable regulatory measures for the regional investment in power sector and CBET
	Regulatory coordination among national regulators	• Development of common acceptable regulations • Power pricing formula, energy accounting for bi-directional power flow • Regulation for power trading over power exchanges, scheduling and imbalance settlement, energy banking etc. • Common template for, sharing data, formulas for transmission pricing, wheeling charges etc. • Provision and practice for open access to inter-country power trade and accepting CBET as licensed activity in the region
Project development & Off-take risk	Smooth land acquisition, environmental clearance, R&R process	• Government's support in smooth land acquisition, environment clearance, rehabilitation and resettlement process • Pre-identified site selection for projects • Single window clearance for necessary approval, licensing etc. to expedite the project development
	Off-take risk mitigation	• Standardise power purchase agreement • Payment security guarantee, by off-taker during the tenure of project operation • Integrated transmission planning • Non-discriminatory transmission and distribution open access in the region • Harmonised grid code, technical standards, grid protection system etc. for CBET project development and operation

Key risks	Enablers to mitigate risks	Potential features of mitigation instruments
Commercial risk	Protection against currency fluctuation	• Project-wise earmarked fund for providing stability in case of currency fluctuation. “Consumer pay” for fluctuation of more than $\pm 2\%$ of currency from reference level. • Dollar denominated PPAs
	Project financing	• Promote insurance and pension funds participation • Upfront tariff for hydro project to minimize the risk of lenders • Facilitation for cross border listing of companies, investing in power projects and CBET in the region • Development of regional debt market in SACs for CBET • Measures to promote long-term debt financing
	Steps to move towards tax/duty free regime	• Abolition of import duty, export and transit tax on the regional investment in power sector and CBET

Annexure 5: Cross Border Trade of Electricity Regulations, 2017 - Draft

As per the directions of the Government of India, the Central Electricity Regulatory Commission of India has issued the CERC (Cross Border Trade of Electricity) draft regulations, the summary of which is given below:

1. Key terms

- Applicant for the purpose of grant of connectivity include the following entities (located in a neighboring country):

S No	Type	Condition
1	Hydro Generating station or RE generator	50 MW & above installed Capacity
2	Any generator	250 MW & above installed Capacity
3	Captive generating plant	Exportable capacity of 250MW & above
4	More than 1 Hydro Generating stations and/or RE generators	Collectively having an aggregate installed capacity of 50 MW and above
5	A consumer	Intending to avail supply of a minimum load of 100 MW

- Any neighbouring country inter-connected with Indian Grid shall be treated as a separate control area.

2. Scope

- These regulations are applicable to all the participating entities in India and neighbouring countries engaged in cross border trade of electricity (CBTE).
- Any action taken for CBTE under the Agreements in force, prior to 5th December, 2016 be deemed to have been taken under these regulations and the guidelines issued by Government of India.

3. Tariff Determination

- Import tariff for CBTE through Government to Government negotiations will be adopted by the appropriate Commission.
- Import tariff for CBTE for other than Government to Government negotiations
 - Tariff for import of electricity will be determined through competitive bidding, and will be adopted by the Appropriate Commission.
 - In case of hydro projects, the tariff may be determined by CERC as per the Tariff Regulations, if approached by the generator through the neighbouring Government and agreed by the Indian entity
 - Tariff for export of electricity to entities of a neighbouring country by Indian entities may be as mutually agreed or discovered through competitive bidding.

4. Compliance of Laws and Regulations

- All entities participating in CBTE have to abide by the Policies, Laws, Rules and Regulations prevailing in their respective countries.
- Provided that in case of any ambiguity or conflict, the Indian laws, rules & regulations will take precedence for the purpose of CBTE with India.

5. Institutional Framework

- Designated Authority as designated by MoP, GoI, will facilitate the process of approval and laying down the procedure for CBTE.
- Transmission Planning Agency (TPA) of each neighbouring country shall be responsible for Transmission System planning in respective country.
- Settlement Nodal Agency (SNA) will be responsible for settling all charges pertaining to grid operations and it will be a member of regulatory pools.
- National Load Dispatch Centre (NLDC) to be responsible for granting & facilitating short-term open access.
- CTU to be responsible for granting & facilitating long term open access.

6. Eligibility Criteria for Participating Applicant

- Same as per guidelines on Cross Border Trade of Electricity issued on 5th December, 2016 by MoP, GOI.

7. Trade through Indian Power Exchanges

- Any eligible entity as per the regulations/guidelines will be eligible for CBTE through Indian Power Exchanges as per the CERC (Power Market) Regulations, 2010.
- The quantum of electricity for CBTE on Indian Power Exchanges will be as prescribed from time to time by the Designated Authority.

8. General Provisions for Connectivity, Long term, Medium Term & Short Term Open Access

- Applications for grant of connectivity and/or long-term access (LTA) or medium-term open access (MTOA) are to be made to CTU as per relevant CERC regulations.
- Applications for grant of short term open access (STOA) to be made to NLDC as per relevant CERC regulations.

9. Application Fee

- The applications for CBTE are to be accompanied by a non-refundable application fee as follows:

S No.	Quantum of Power to be injected/ off taken into/from ISTS	Application fee(Rs. in Lakh)	
		For Connectivity/ Long term Access	Medium-term open access
1	Up to 100 MW	4	2
2	More than 100 MW and up to 500 MW	6	4
3	More than 500 MW and up to 1000 MW	12	6
4	More than 1000 MW	18	8

No application bank guarantee required for Long/medium term, while for short-term, it will be as per relevant CERC regulations.

10. Time Frame for Processing

- Long-term access applications – 60 to 90 days
- Medium-term open access applications – 30 days

11. Application for Grant of Connectivity

- On receipt of the application, the CTU will, in consultation & coordination with other TPA, process the application as specified in the relevant regulations.
- The grant of connectivity will be considered as provisional till the cross border LTA application for a minimum of 50% of Installed Capacity (minus auxiliary consumption) is filed by the Applicant.

12. Implementation of Cross Border Transmission Link

- The CTU will be responsible for the implementation of cross border transmission link between the pooling stations within India till the Indian border. Beyond that, the responsibility of the implementation will be that of the applicant or the TPA.
- The tariff for the cross border transmission link will be payable by the Applicant.
- The tariff will be charged even in case of non-availability of the matching transmission line or non-availability of generating station across the border.
- The detailed modalities for the same will be specified by the DA.

13. Access Bank Guarantee

- For LTA, the applicant will be required to furnish to the CTU, an 'Access Bank Guarantee' of INR 1 Crore/MW corresponding to the quantum of LTA sought.
- After operationalisation of LTA, each year one fifth of the value of Access Bank Guarantee will be returned to the Applicant such that it will be discharged in 5 years.

14. Firming up of Drawl or Injection by LTA Customers

- The applicant will be required to notify the CTU and TPA of neighboring country within one month from the date of signing of the PPA along with a copy of PPA.
- In case PPA is signed for a duration of 1 to 7 years with any entity in the target region sought in LTA application, there is no need to apply for MTOA separately.
- In case PPA is signed for a duration of less than 1 year – Applicant will have to seek STOA separately & energy will be scheduled under STOA as per relevant regulations.
- In case PPA is signed for a duration of less than 7 years with an entity located in other than target region sought in LTA application, applicant will have to apply for MTOA.

15. Metering Arrangements

- Special Energy Meters will be installed at both the ends of the cross border transmission link as per CEA Regulations.
- Meters will be installed at Generating stations located outside India as per CEA Regulations.

16. Scheduling

- Scheduling of electricity will be carried out as per agreed quantum in the contracts between the buying entity and selling entity.
- Scheduling will be carried out for each 15-minute time period in a day.
- Transmission System Losses will be borne in kind by the buying entity/selling entity.

17. Commercial Settlement, Co-ordination, Agreements/PPA, Metering Issues, Trading Margin and Other Issues

- The functions of commercial settlement will be settled by Settlement Nodal Agency on behalf of the Selling /Buying Entity with System Operator and further settled with the concerned Parties.

18. Payment of Transmission Charges and Other Charges

- PoC Injection and Withdrawal charges shall be governed as per CERC (Sharing of ISTS Charges & Losses) Regulations, 2010.
- Settlement Nodal Agency shall ensure the payment of applicable charges for communication system of CTU.

19. Transmission Losses

- Transmission Losses & Net schedule at Indian end of the cross border transmission line will be arrived at after applying injection PoC loss of the concerned injection zone and withdrawal of PoC loss.
- The Settlement Nodal Agency will pay the Fees and Charges of the System Operator in India only on behalf of the entities in neighboring countries as per CERC Regulations and in turn collect the same from the concerned entities.

20. Payment Security Mechanism

- An irrevocable, unconditional and revolving Letter of Credit in favour of the CTU equivalent to 2.5 times of the average Bill amount towards transmission charge for 3 months of the Application Period with a validity of 1 year;
- An irrevocable, unconditional and revolving Letter of Credit in favour of the SNA of India equivalent to 2.5 times of the average Bill amount towards grid related charge for 3 months with a validity of 1 year.

21. Dispute Settlement and Resolution Mechanism

- In case the dispute remains unresolved even after sixty (60) days from the date of raising of the dispute, then:
- In all other cases, disputes will be referred to and finally settled by arbitration in accordance with the Rules of Arbitration of Singapore International Arbitration Centre ("SIAC Rules").
- In case of government to government agreement, Secretary (Power) of GoI and the concerned Secretary to Government of neighboring country will attempt to resolve the Dispute. If the Dispute is not resolved within 30 Days, it shall be referred to and finally settled by arbitration in accordance with the SIAC Rules.
- The seat and venue of the arbitration shall be Singapore and the arbitration proceedings shall be conducted in English language.

22. Force Majeure and Change in Law

- All concerned entities will have to make appropriate provision in the Long Term Cross Border Access Agreement and the PPA for settlement arising out of the force majeure events and Change in Law.

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About SARI/EI

Over the past decade, USAID's South Asia Regional Initiative/Energy (SARI/E) has been advocating energy cooperation in South Asia via regional energy integration and cross-border electricity trade in eight South Asian countries (Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan, and Sri Lanka). This fourth and the final phase, titled South Asia Regional Initiative for Energy Integration (SARI/EI), was launched in 2012 and is implemented in partnership with Integrated Research and Action for Development (IRADe) through a cooperative agreement with USAID. SARI/EI addresses policy, legal, and regulatory issues related to cross-border electricity trade in the region, promotes transmission interconnections, and works toward establishing a regional market exchange for electricity.

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