



Harmonization of Regulations & Policies for Cross Border Power Trade

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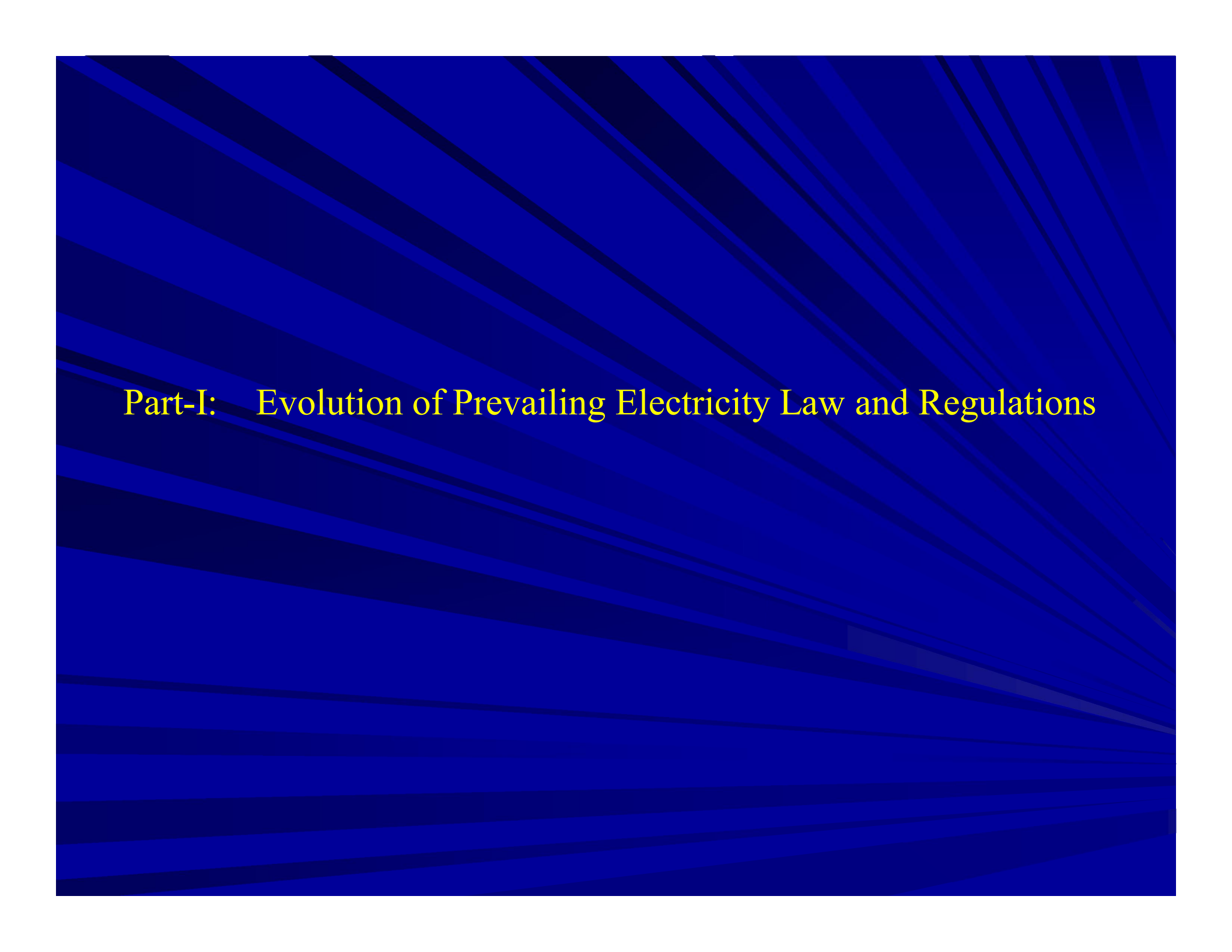
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Presentation Sequence

Part-I: Evolution of Prevailing Electricity Law and Regulations

Part-II: Requirements for Promoting Regional Power Trade



Part-I: Evolution of Prevailing Electricity Law and Regulations

Energy Resource Endowments

Country	Coal Million Tonnes	Oil Million Barrels	Natural Gas Trillion Cubic Feet	Hydro MW	Biomass Million tonnes
Afghanistan	440	NA	15	25,000	18 - 27
Bhutan	2	0	0	30,000	26.6
Bangladesh	884	12	8	330	0.08
India	90,085	5,700	39	150,000	139
Maldives	0	0	0	0	0.06
Nepal	NA	0	0	42,000	27.04
Pakistan	17,550	324	33	45,000	NA
Sri Lanka	NA	150	0	2,000	12
Total	108,961	5,906	95	294,330	223

Despite relatively a large energy resources base of 109 billion Tonnes of Coal and 300,000 MW HPP SA faces acute power shortages except for Bhutan

Access to Electricity–Regional Aggregates

Region	Population without electricity (millions)	Electrification Rate %	Urban electrification rate %	Rural electrification rate %
Africa	587	41.8	68.8	25.0
North Africa	2	99.0	99.6	98.4
Sub-Saharan Africa	585	30.5	59.9	14.2
Developing Asia	675	81.0	94.0	73.2
China & East Asia	182	90.8	96.4	86.4
South Asia	493	68.5	89.5	59.9
Latin America	31	93.2	98.8	73.6
Middle East	21	89.0	98.5	71.8
Developing countries	1,314	74.7	90.6	63.2
World*	1,317	80.5	93.7	68.0

*World total include OECD and Eastern Europe/Eurasia

Source: IEA, Table 1: Electricity Access in 2009-Regional Aggregates, (<http://www.iea.org/weo/electricity.asp>)

Evolution of Prevailing EL&R

- Sector was State owned and regulated till 1990's except in some pockets of India and Pakistan
- Accelerated demand could not be met thru government spending alone
- Power sector reforms initiated to attract private investment
- Prevailing EL&R were introduced as part of power sector reforms
- Focus was to exploit indigenous resources to meet in-country demand
- Despite the fact that **Afghanistan, Bhutan, India, Nepal and Pakistan** were importing electricity from neighboring countries only Bhutan and Nepal made provisions for power exports/imports in their EL&R

Afghanistan

- Afghanistan is yet to formulate a comprehensive law/regulation to manage cross border electricity trade
- Existing bilateral agreements with Central Asia not in public
- Discussions with authorities indicated that Government will incorporate requisite provisions for cross border power trade in new laws and regulations

Bangladesh

- BERC Act 2003 regulates the power sector in Bangladesh
- There are no provisions to govern cross border power trade
- Some of BERC Act provisions listed below could impact cross border electricity traders, creation of cross border electricity infrastructure and investments
 - Sections: 24-Relation between Government and Regulatory Commission under which BERC can be tasked to be planner as well in addition to regulation (may lead to conflict of interest)
 - Section: 34-Traiff Fixation in consultation with government (undermines autonomy)
 - Section 36- BERC can vest the licensees/operators properties to any other person (insecurity of investment)
 - Section 55- Commissions order final (no provision for appeal)

Bhutan

- ❑ BEA 2001 clarifies Govt.'s intention to develop the sector as a big revenue generator through cross border power trade
- ❑ It sets out legal and regulatory framework to promote cross border power trade
- ❑ Existing and under implementation generation committed for use in Bhutan & India
- ❑ Existing exports through govt. designated agencies only
- ❑ Energy can be exported from power plants that are not committed to existing clients
- ❑ Private investment can help achieve this goal
- ❑ Policy for FDI in power sector yet to be announced
- ❑ Limitation - India needs to facilitate its power trade with any other country in the region

India

- Electricity Act 2003 that governs power sector is silent on cross border power trade
- CERC notification No. L.7/143/158/2008-CERC issued under Section 178 of the Act states: *inter-state trading” mean transfer of electricity from the territory of one State for re-sale to the territory of another State and includes electricity imported from any other country for re-sale in India”*
- But CERC order of February 16, 2009 clarified that the above notification does not apply to cross-border trade
- It further states that the definition referred to in the previous paragraph, “export of electricity needs to be excluded from the definition of inter-state trading”
- It also clarifies that the Regulation deals with electricity trade “after the stage of import”
- Two important features of the Act from cross border power trade perspective are:
 - Open Access on Transmission systems, and
 - Creation of electricity market in India (that could be expanded to include cross border power trade)

Maldives

- Regulations formulated under Law Number 4/96 (General Services law)
- It designates MEA as the regulator for the electricity sector in the country
- Main provisions of the law to provide electricity services are reproduced below:
 - Electricity service providers will need to be registered and authorized to provide electricity services by the MEA prior to service provision. Such service providers should adhere to this regulation.
 - Prior to commencing electricity services, the full specifications of the engines to be used for service provision should be submitted to the MEA
- Due to miniscule demand & limitations of available technology it is uneconomical to connect the Maldives power grid to any neighboring country
- Hence there are no provisions that would deal with electricity imports.

Nepal

- Nepal Electricity Act, 2049 (1992), and Electricity Regulation, 2050 (1993) contain provisions for import/export of electricity
- They specify legal/regulatory requirements for electricity importer/exporters
- Technical and operational performance parameters to be abided by the cross border electricity traders are laid down therein
- There are no discriminatory provisions that would hinder cross border power trade
- Nepal is yet to put in place the Electricity Regulatory Commission
- An important factor therein is the non-nationalization of electricity assets
- But export duty contemplated therein could be an impediment

Pakistan

- Regulation of Generation, Transmission and Distribution of Electric Power Act 1997 [Act XL of 1997] regulates the power sector in Pakistan
- With the implementation of the Act the regulatory powers of GOP are vested in National Power Regulatory Authority (NEPRA)
- Despite Pakistan's power imports from Iran the Act is silent about cross border power trade
- The Act permits grant of license for Special Purpose Transmission Lines, with the caveat that the owners of these lines shall have to provide "Open Access" on their systems to other users on payment of specified license fee.
- Sub-section 1 of Section 32 specifies that prior approval of the authority is obligatory for procurement of power by the transmission and distribution licensees

Sri Lanka

- Sri Lanka Electricity Act, No 20 of 2009 governs the sector
- Prevailing Sri Lanka regulation is restrictive in attracting private investment
- Section 9 restricts issue of license to entities other than CEB, local authorities, societies and companies in which GOSL holds >50% equity
- Though Section 10 (1) and (2) make provisions for license exemption they do not lay down the norms for such exemptions
- Section 16 (b) (b) requires the generators to sell energy exclusively to transmission licensees
- Generator is left with no choice of third party sale in the event of payment default
- The Act is silent about cross border electricity trade

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Part-II: Requirements for Promoting Regional Power Trade

Legal Aspects

- Amend EL&R to incorporate norms for cross border power trade
- Permit Open Access on transmission systems to the extent of redundancies
- Freedom of transit to wheel electricity through the territory of third countries
- Cross border electricity flows to enjoy the same treatment as provided by the host country for its own power flows
- Non-disruption of supply in case of any eventuality, political or otherwise
- Facilitate creation of new transmission and generation capacities
- Grant the right of way for setting up of dedicated transmission lines within transit States
- Exempt cross border electricity traded from export tax or import duties.

Regulatory Aspects

- Eliminate the possibility of supply disruptions
- Establish a regulatory mechanism to regulate cross border power trade in SAARC region
- Create a level playing field for cross border electricity flows and to promote investment
- Non-discriminatory Open Access to grids to facilitate electricity flows through out the region
- Transmission pricing to be transparent and that supports cross border trade
- System pricing to be cost reflective with no cross-subsidies
- Minimize the landed costs of cross border electricity supply across the region
- Address environmental issues while creating additional electricity infrastructure

Regulatory Aspects

- Encourage investment for the creation of the SAARC regional electricity market
- Encourage deployment of new technologies to enhance supply and reduce losses
- Generators not to have ownership or management interest in the cross border trans. networks
- Benefits that generators provide to the system (voltage, frequency support, grid reliability and stability, reduction in transmission and reduced requirements for Spinning Reserve etc.) be fully and fairly reflected in system pricing
- Generators not to be charged excessively for their system impacts

Technical Aspects

- Harmonization of Grid Codes/Standards/Operation norms, connectivity Standards maintenance schedules and procedures including voltage and frequency level, etc.
- Energy flows to be based on detailed load flow studies, optimal power flow modeling, short-circuit modeling, dynamic stability modeling and transient modeling
- Protection systems for load segregation in the event of faults in the interconnected systems
- Setting up of an appropriate communication and monitoring systems
- Establishing AC instead of HVDC interconnections to reduce costs & investment
- Adoption of common metering standards to measure energy flows
- Transmission planning to be done by Member States taking cognizance of electricity flows required to meet the regional demand

Commercial Issues

- Consensus on currency for settlement of accounts
- Payment security and settlement mechanisms for power purchases
- Security of investments
- Norms for energy flows on trans. Systems to help recover investment & returns
- Frequency and intervals at which meter readings will be recorded
- Periodicity for submission and settlement of accounts
- Mechanism to record deviations from scheduled energy flows and incentives or penalties for deviations from schedule
- Standardization of commercial documents
- Dispute resolution mechanism

Regional Initiatives

Necessary changes can be brought either by amending EL&R individually at country level or through a regional framework at SAARC level and its ratification by all Member States by establishing :

- SAARC Electricity Legal Framework to permit/facilitate cross border power trade
- SAARC Regulatory Mechanism to regulate cross border power trade
- SAARC Electricity Trading Mechanism
- SAARC Regional Power Plants to add substantial capacities to enhance supply
- SAARC Investment Facilitation Program to promote cross border investments
- South Asia Regional Power Exchange for which a study has been undertaken by the ADB
- SAARC Template Documents to reduce transaction time and costs

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Thank you!