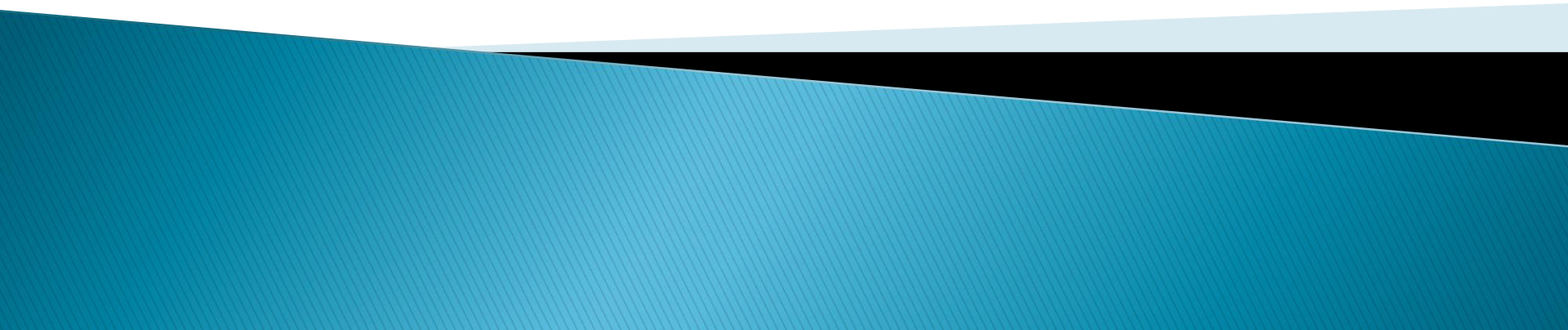



# Draft Roadmap for Energy Connectivity in Asia and the Pacific


North-East Asia Subregion



# Actions – I

- A-1. Building Trust and Political Consensus
    - “Asia Pacific grid integration summit” for promotion and coordination of region-wide connectivity efforts.”
  - A-2. Networking of Sub-regional Intergovernmental Institutions
    - the networking of sub-regional intergovernmental institutions working in the ... sub-regions to promote energy cooperation in support of connectivity
  - A-3. Develop and Implement Intergovernmental Agreements on Energy Cooperation and Interconnection
    - “For NEA ...creation of sub-regional body dedicated to realizing interconnection...”
    - “...intergovernmental committees or working groups comprising members from national governments ... regulators..”
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# Actions – II

- A-4. Move from Bilateral to Trilateral and Multilateral Power Trade
    - “...to continue to promote power grid connectivity on bilateral basis, as a building block of a multilateral system...”
  - A-5. Coordination, Harmonization and Institutionalization of Policy and Regulatory Frameworks
    - “Regulators in each sub-region with the support of intergovernmental institutions and or multilateral institutions should establish ... associations...”
  - A-6. Coordinated Transmission Planning and System operation and Institutionalization
    - “...the development of ... feasibility studies for smooth interconnection of power systems in each sub-region...”
    - “...national transmission plans and cross border transmission plans should be compatible with each other...”
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# Actions – III

- A-7. Create a Unified Electricity Market
  - “The forum of regulators in each sub-region can support the development of a unified electricity market...”
- A-8. Mobilize Investment in Cross-Border Grid and Generation Infrastructure
  - “It is proposed to create associations of financial institutions and multilateral institutions ... in each sub-region to facilitate policy makers of member countries to develop investor friendly policies and frameworks to encourage private investment.”
- A-9. Ensuring the Financial Viability of Generation, Transmission and Distribution
- A-10. Establish Dispute Resolution Mechanisms
- A-11. Capacity Building, Sharing of Information, Data, Learnings and Best Practices

# Questions

- ▶ Draft Roadmap looks quite general and relevant both for Asian region as a whole and for its subregions
- ▶ Actions in fact are not proceeding concurrently, they are shifted in time, sometimes by decades; some are taken first, then others
- ▶ Each action for each subregion has different importance for and effect on power connectivity, because subregions are very different in terms of power connectivity
- ▶ Regional Grid Masterplan in Action 2 seems to be premature; it outpaces Subregional Grid Masterplans

# Chronology of Regional Power Integration in Central America (SIEPAC) – I

Year	Event
1976	First interconnection in the region built between Honduras and Nicaragua.
1979	The governments and state utilities of the six countries agree to create the <b>Central American Electrification Council (CEAC)</b> .
1989	CEAC is formally established following ratification of its Constituent Agreement.
1990	Costa Rica is the first country in the region to begin reform of its electricity sector. Establishes a single-buyer model. Guatemala follows in 1991.
1993	<b>Protocol Treaty on Economic Integration of Central America</b> agreed to at summit of Central American Presidents.
1996	Peace accords signed in Guatemala ending the internal conflicts that began there in 1960. Conflicts had also ended in Nicaragua (1988) and El Salvador (1992).  Guatemala implements a cost-based pool. All six countries have now reformed at least to the stage of introducing a single buyer.  The six countries sign the <b>Marco Treaty of the Electrical Market of Central America</b> .  Technical studies support the construction of a 230 kV regional transmission line.
1997	IADB and the government of Spain approve loans to the SIEPAC project.
1998	<b>Marco Treaty ratified.</b>  Economic-technical study of SIEPAC carried out.
1999	<b>Marco treaty comes into effect.</b>  Regional transmission line company (EPR) incorporated.
2000	<b>MER design approved</b> by six governments following two-year development process.  <b>Regional electricity market regulator (CRIE)</b> established.  Nicaragua launches its wholesale electricity market.
2001	<b>Regional electricity system and market operator (EOR)</b> established.  IADB loan package reformulated to include concessionary loans to Honduras and Nicaragua.



# Chronology of Regional Power Integration in Central America (SIEPAC) – II

Year	Event
	Interconexión Eléctrica S.A. (ISA) of Colombia becomes eighth shareholder in EPR.
	<b>Plan Puebla-Panama (PPP)</b> proposed by Mexico to support regional development and integration.
2002	New tie-line between Guatemala and El Salvador completes interconnection of all six countries. However, transfer capacities remain limited.
	<b>Transitional Regulations for the Regional Electricity Market (MER)</b> finalized by CRIE and signed by the governments.
	MER begins operation under transition code.
2003	Environmental impact assessments for the SIEPAC line completed for each of the six countries.
2004	A geological and geotechnical study and ground classification are carried out for the route.
	Plan Puebla-Panama institutionalized.
2005	Transitional MER regulations replaced by updated code approved by CRIE.
	Central American Free Trade Agreement (CAFTA) signed into US law.
2006	<b>Construction of the SIEPAC transmission line begins.</b>
	Construction begins on the strengthened interconnection between Mexico and Guatemala.
2008	Initially planned completion date for SIEPAC line missed. Completion now expected in 2010.
	Plan Puebla-Panama changes its name to the Mesoamerican Integration and Development Project ( <b>The Mesoamerican Project</b> ).
	The state-owned Mexican utility, Comisión Federal de Electricidad (CFE), becomes the ninth shareholder.
2009	La Corporación Andina de Fomento (CAF) signs a loan agreement with EPR.

# Suggestions

- ▶ Draft Roadmap may be further specified considering particular conditions of subregions
  - ▶ Thus, Draft Roadmap for each subregion will be virtually obtained
  - ▶ Actions for subregional Draft Roadmap have to be specified
  - ▶ Specified actions should be prioritized and streamlined
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