



Summary and Proceedings

Third Meeting of the Expert Working Group on Energy Connectivity

29 August 2019, Bangkok

Summary

The Third Meeting of the Expert Working Group on Energy Connectivity (EWG-EC) was held in Bangkok on 29th August 2019. Views and suggestions of the Expert Working Group members were sought on the draft regional Roadmap to be finalized and presented at the Second Session of the Committee on Energy in October 2019.

Under the overall guidance of ESCAP member States, the Roadmap aims to propose a strategy towards an integrated power market with focus on sustainability. This will include the development of a regional framework and appropriate institutions to support and coordinate the regional framework under the objective of advancing cross-border electricity trade. By building upon existing sub regional initiatives, it will enable coordination among various institutions and serve to eventually remove barriers to energy interconnection. This will underpin the region's social and economic development and assist the move to a low carbon energy system. It can further ensure an optimal allocation of regional resources, efficient use of clean energy, increased availability and affordability of electricity and improved regional energy security. It therefore contributes to the advancement of Goal 7 and other Sustainable Development Goals.

Several interconnection transmission lines have been established to carry out Cross Border Electricity Trade (CBET) and the results of regional power cooperation have become increasingly prominent. However, most of the connections are bilateral and a transition to multilateral power trade agreements is required to eventually realize a pan-Asia interconnected grid.

The Roadmap serves to facilitate regional energy connectivity and thereby tackle energy challenges such as providing electricity access to the last mile communities, meeting the region's energy demand which is expected to double by 2050, reducing carbon emissions, achieving higher share of renewables and capitalizing on unequal distribution of resources.

The Third meeting of the EWG-EC shared sub-regional and national perspectives on the draft Roadmap and its proposed 11 action items. After considerable deliberations, participants agreed on 9 action items. Political consensus and government support remain central to achieving increased energy connectivity with a further need to align policy and regulatory frameworks. Intergovernmental organizations and development banks can expedite this process by facilitating continuous dialogue, promoting signature of agreements, providing capacity building, technical assistance and mobilizing financial resources. International experiences from existing power pools were shared and it was highlighted that Asia Pacific can extract important learnings to inform the creation of a regional grid.

Building upon the outcomes of ESCAP's 72nd annual Commission to establish an EWG under the objective of promoting grid interconnectivity, as well as the recommendation of the Second Asia Pacific Energy Forum 2018 to develop a regional Roadmap for energy connectivity, the Third EWG meeting resulted in a consensus on the regional Roadmap. ESCAP will present the Roadmap at the Second Session of the Committee on Energy coordinate for endorsement from the member States. Subsequently, ESCAP will continue to engage with the EWG-EC to identify means of implementation for the Roadmap.

ESCAP will further continue its efforts to facilitate intergovernmental processes and draw upon regional and global expertise in energy connectivity to promote energy cooperation and connectivity. Through this process, ESCAP aims to address the region's economic and social needs, supporting the achievement of SDG7 and meeting climate change targets.

Overview

The deliberations covered the following issues:

- a. Detailed presentation on the proposed Roadmap and supporting action areas;
- b. Sub-regional perspectives on the draft regional Roadmap (South and South-West, East and North-East, South-East Asia and North and Central Asia);
- c. Critical review and discussion of proposed action areas under the Roadmap;
- d. International practices and lessons learned to inform the development of the Roadmap;
- e. Revision of the action areas, identification of timeframes and responsible actors for each action item

The meeting further benefited from inputs by organizations and agencies which are working on energy connectivity across the region including the SAARC Energy Centre, Global Energy Interconnectivity Development and Cooperation Organization (GEIDCO), University of Tokyo, Australia-China Relations Institute and Integrated Research and Action for Development (IRADe)

The regional Roadmap includes a strategy towards an integrated power market, which will include components that need to be developed by member States in advancing cross-border electricity trade. These components include development of a regional framework and appropriate institutions to support and coordinate the regional framework. The regional framework is expected to initially provide additional impetus to the existing sub regional initiatives and enable coordination among various institutions.

ESCAP in supported by experts and EWG-EC members has prepared the initial draft of the regional Roadmap. The draft Roadmap proposed 11 action areas for regional stakeholders to critically review and designate timeframes as well as identify responsible entities for coordinating each action area. Participants reached a consensus on nine action items and also discussed the timeframes set for each action. The EWG-EC also identified the relevant actors to further guide and implement the action areas. The Roadmap will be presented to the Second Committee on Energy in October 2019 for endorsement by member States.

Proceedings

1. Opening Remarks

Mr. Hongpeng Liu, Director, Energy Division, United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) in his opening remarks welcomed all the participants and recapped the discussions from the 2nd Meeting on EWG-EC in Beijing which had resulted in an agreed structure of the regional Roadmap. ESCAP has since worked together with consultants and experts to further develop this Roadmap and present it for review by the EWG-EC.

He highlighted that about 320 million people in the region still lack access to electricity and energy demand is expected to double by 2050. CBET as an important driver for economic growth, energy cooperation and social development can address these challenges. It can be facilitated by capitalizing on existing bilateral agreements and cross-border infrastructure to promote energy connectivity across the region. However, this needs immediate and dedicated action from all relevant actors.

Mr. Liu reiterated that this meeting builds upon the outcomes of ESCAP's 72nd annual Commission to establish an EWG under the objective of promoting grid interconnectivity, as well as the recommendation of the Second Asia Pacific Energy Forum 2018 to develop a regional Roadmap for energy connectivity. This meeting thus serves to review and refine the draft Roadmap for further endorsement by the Second Session of the Committee on Energy in October.

The second meeting of the EWG-EC elected Ms. Xiaowei Wei, Director, International Cooperation Department, National Energy Administration, China as the chair of the third meeting of the EWG-EC. The Chair emphasized that cross-border grid integration can help achieve a cost-effective energy transition. It will help capitalize on an uneven distribution of renewable resources and help diversify of the regional energy mix which is primarily dependent on fossil fuels. The Roadmap will further facilitate energy connectivity by working towards outcomes such as the removal of institutional barriers, establishing avenues to build political trust and regulatory frameworks, and improving the financial feasibility of cross-border energy projects.

Mr. Michael Williamson, Chief of Section, Energy Division, United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), served as the moderator for the meeting.

2. Outline of the Draft Regional Roadmap for Energy Connectivity

Mr. Vijay Kharbanda provided a detailed overview of the proposed Roadmap, action areas and the supporting rationale behind them. Action points under the Roadmap were developed in view of the challenges identified in the first two working groups. The draft Roadmap has taken into account status reports from experts and proceedings from the previous EWG meeting in Beijing, as well as international learnings and resources such as the Asia Pacific Energy Portal.

The draft Roadmap proposed 11 action points and underscored that developing effective institutions supported by political will and institutional coordination are key to addressing said challenges. Evolving existing bilateral power connections into multilateral agreements and eventually a unified power market will also require coordination and harmonization of standards,

policies and regulations. Cross-regional sharing of experiences, best practices and capacity building activities are needed to address certain knowledge gaps and facilitate this transition. Financial viability of cross-border power infrastructure project needs to be further addressed to mobilize investment.

ESCAP, intergovernmental agencies, Multilateral Development Banks (MDBs), specialized agencies and the private sector will play an important role in implementation of the proposed action areas.

3. Learnings from International Experiences on Energy Connectivity

This session introduced experiences and lessons learned across the South African Power Pool (SAPP), West African Power Pool (WAPP) and the Nordic Power Pool. These case studies demonstrate that operationalizing cross border power trade can be a time consuming, step-by-step process with preliminary efforts laying the groundwork for outcomes that may materialize after decades.

A number of transitional milestones have to be realized beforehand. This can include establishing instruments such as Inter Governmental Memorandums of Understanding (MoUs), inter-utility MoUs, Power Purchase Agreements (PPA), transmission planning, dispute resolution tribunals and regulatory coordination mechanisms. Mitigation of financial and political risks can also help to attract private sector to achieve the required synergies.

The proposed Roadmap reviews the distinct features, processes and mentioned instruments from these power pools. Asia Pacific region can extract these learnings and draw upon experiences to inform the Roadmap.

4. Sub-Regional Perspectives on the Draft Regional Roadmap

This session was moderated by Mr. Michael Williamson, ESCAP and invited respective participants to provide sub-regional perspectives on energy connectivity in Asia and the Pacific, as well as feedback and comments on the draft Roadmap.

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| a) South-East Asia | Mr. Xunpeng Shi |
| b) South and South-West Asia | Mr. Vijay Kharbanda |
| c) North and Central Asia | Mr. Bakhtiyor Shamsiev |
| d) East and North-East Asia | Mr. Sergei Podkovalnikov |

Representatives reviewed the current status of energy interconnection in their sub-region and stated that current agreements in place are limited to bilateral exchanges with potential to evolve into multilateral trade and eventually the creation of an integrated power market. It was agreed that the Roadmap should adhere to a guideline for social and sustainable development which ESCAP can develop in harmonization with the Sustainable Development Goals.

Lessons from **South-East Asia** demonstrate that getting local acceptance is a key success factor in implementation of cross border infrastructure projects. This can be obtained by building stakeholder engagement and ensuring a socially positive contribution towards the local communities to ensure an inclusive approach is undertaken. Based on these suggestions,

members of the EWG-EC agreed that a dedicated action item be added on social inclusiveness. Additionally, it should be taken into account that sub-regional standards may create future harmonization challenges. It was further highlighted that the existing regional cooperation mechanisms such as the Belt and Road Initiative can further facilitate regional energy connectivity.

The **South and South-West** sub-region representative endorsed the current draft of the Roadmap and indicated that strong leadership is needed from within the cluster, especially from major countries. International experiences can be extracted to institutionalize CBET and support the work of Intergovernmental Institutions such as SAARC Energy Center in the region. Energy connectivity can be further facilitated by the integration of capital market to attract higher investment.

The **North and Central Asia** representative highlighted that Several MoUs have been signed to facilitate cross border power trade. The diversity between sub-regions in terms of economic, social and political environment factors should be taken into account in the draft Roadmap.

The **East and North East Asia** representative voiced similar concerns and stated that each action has a different degree of importance for every sub-region. It was highlighted that establishing a regional grid master plan should be done subsequent to the development of sub-regional master plans. These are important pre-requisites, and both are dependent on each other. The representative recommended that the actions be further specified. Timelines should also be established to provide clarity on the chronology of actions.

The representatives collectively agreed ESCAP can help develop an understanding among IGOs, MDBs, specialized agencies and other actors to promote energy connectivity and provide overall coordination, as well as, extract learnings from international experiences to institutionalize CBET. Going forward, political commitment can be gained in the form of Intergovernmental agreements, treaties, MoUs, developing common set of regulations and standards as well as a regional investor friendly framework. It can be further supported through increased sharing of data, knowledge, best practices and more capacity building activities. There is a further need to coordinate and harmonize regulations, technical standards, grid codes, and operating procedures. This can take decades but can be supported through the establishment of effective regional and sub-regional institutions.

5. The Institutional Dimension of Regional Power Connectivity

The University of Tokyo presented its research on the Institutional Dimension of Regional Power Connectivity. Effective institutions are fundamental to achieving regional power connectivity. A survey was shared with participants with an invitation to engage in further exchange of knowledge and experiences to inform the institutional infrastructure around energy connectivity in Asia and the Pacific.

6. Open Discussions: Feedback of EWG Members on the Draft Regional Roadmap

This session was moderated by Mr. Michael Williamson, ESCAP. This 11 action items were discussed and deliberated upon by the EWG members, taking into account sub-regional

perspectives shared earlier, and the broader regional challenges. The floor was opened for discussions and participants were requested to share their views on the action areas. Participants agreed on the following nine action points:

- i. Action 1: Building Trust and Political Consensus for Cross Border Electricity Trade
- ii. Action 2: Development of a Regional Cross-Border Electricity Grid Masterplan
- iii. Action 3: Develop and Implement Intergovernmental Agreements on Energy Cooperation and Interconnection
- iv. Action 4: Coordination, Harmonization and Institutionalization of Policy and Regulatory Frameworks
- v. Action 5: Move Cross-Border Power Trade from Bilateral to Multilateral Basis and Create Competitive Markets for Cross-Border Electricity
- vi. Action 6: Coordinated Cross-Border Transmission Planning and System Operation
- vii. Action 7: Mobilize Investment in Cross-Border Grid and Generation Infrastructure
- viii. Action 8: Capacity Building, Sharing of Information, Data, Learnings and Best Practices
- ix. Action 9: Ensure the Coherence of Energy Connectivity Initiatives with the Sustainable Development Goals

Participants agreed that the transition from bilateral to multilateral, and eventually to an integrated power market will require political support and trust, alignment of policy and regulatory frameworks and mobilization of funds. Intergovernmental organizations and development banks can expedite this process by facilitating continuous dialogue, promoting signature of agreements, providing capacity building, technical assistance and access to financing.

It was agreed that ESCAP with support from member States will engage with other intergovernmental institutions, subregional cooperation organizations, MDBs, specialized agencies and other international organizations to leverage capacities in promoting energy connectivity across the region. Given ESCAP's convening power it can bring together stakeholders for a high-level forum with the objective of building political trust as well as to facilitate collaboration between governments, businesses, and financial institutions. Similarly, a forum or association of regulators can be established to facilitate a common set of regulations for CBET such as licensing, open access, harmonization of grid codes and transmission pricing framework at a sub-regional level but with the view to eventually cover the entire region. A similar association can be created between technical institutions, system operators and transmission utilities to ensure coordinated cross border transmission planning and system operation

Transitional milestones should be factored in when setting a long-term vision for energy connectivity across the region and its sub-regional blocks. Regional power connectivity will rely on creating a transparent, competitive, balanced and unified electricity markets with fair pricing mechanisms. This will require a strong yet transparent and flexible institutional infrastructure.

Local electricity markets in some markets may need further development before opening up for integration into a regional market. While the penultimate action is to move to a unified market, each subregion will move at their respective pace given the differences in geopolitical environment, socio-economic factors, existing infrastructure and geographical considerations.

The EWG-EC reiterated that social dimensions be built into the Roadmap. Aligning policies, regulations and standards with respect to CBET is vital and must be supported through in-depth research and analysis. The EWG-EC also established that possible disputes can be a source of economic losses. Countries before engaging in CBET should already have identified a dispute resolution process while taking into account the appropriate legislative system. This serves to preserve cordial relationships and manage associated risks to ensure financial feasibility of projects. Innovative financial instruments and mechanisms are needed to attract large-scale investment in each sub-region to mobilize financing. It is therefore important to create an environment conducive to local and foreign investors. Investor friendly policies, guidelines and frameworks should be in place and address the smooth processing of issues such as land acquisition, resettlement and relocation process, and planning clearances.

Experts agreed that while the development of a regional grid master plan is a highly expensive and ambitious undertaking, it will serve as a blueprint for the intra and inter sub regional interconnection. In that regard, ESCAP can provide technical support through geospatial mapping of transmission line data to also help study the technoeconomic aspects of cross-border connectivity.

The scope of energy connectivity with Small Island States (SIDs) was also discussed. While physical connectivity may not be an ideal solution for remote SIDs as costs can be prohibitive; they can benefit from other forms of energy cooperation such as better standards for grid management, renewable integration, cross-border capacity building and sharing of best practices.

ESCAP can delve into processes that are integral to developing regional energy connectivity. It has the reach to extract learnings from other regions and international experts to inform the development of a pan Asian grid. Sub-regional narratives can be built onto the Roadmap and it was proposed that sub regional EWG could be established in the future.

7. Way Forward

The participants agreed that the Roadmap will identify a passage that will eventually lead the Asia Pacific region towards a more integrated market through the achievement of transitional milestones across the short, medium and long-term stages. The regional Roadmap proposes a strategy towards this integrated market, which includes components that need to be developed by member countries in advancing cross-border electricity trade. These components include development of a regional framework and appropriate institutions to support and coordinate the regional framework. The regional framework is expected to initially provide additional impetus to the existing sub regional initiatives and enable coordination among various institutions. ESCAP will develop a focused and action-oriented road map for energy connectivity in the Asia Pacific region based on the deliberation of this meeting.

Moving forward, the Secretariat will seek the endorsement of the Committee on the Roadmap. Subsequently, ESCAP will work closely with EWG and expert consultants to identify means of implementation for the Roadmap.

The Secretariat also invited participants to the 10th International Forum on Energy for Sustainable Development that takes place on 7-8 October 2019, jointly organized by Ministry of Energy, Thailand and all five UN Regional Commissions.