



The 4th Northeast Asia Energy Security Forum

Seoul, 15 December 2016

REPORT OF THE FORUM

1. ESCAP and the Ministry of Foreign Affairs of the Republic of Korea jointly organized the 4th Northeast Asia Energy Security Forum in Seoul, ROK, on 15 December 2016. The Forum brought together representatives from governments, utility companies, energy institutions in Northeast Asia to discuss policy, technical, financial issues related to power interconnection and the arrangement of intergovernmental/ multistakeholder platform in support of policy dialogue and coordination.
2. Speakers include representatives from Energy Research Institute of the State Grid Corporation of China, Ministry of Energy of Mongolia, China Electricity Council, Russian state energy corporation Rosseti, Korea Electrotechnology Research Institute, Asia Pacific Energy Research Centre, Future Energy Strategy Research Cooperative, Korea Electric Power Corporation, Russian energy company En+, ASEAN Power Grid Consultative Committee, Energy Systems Institute of Russian Academy of Sciences, etc. The forum was also attended by around 100 participants.
3. **[Power Grid Interconnection in North-East Asia: Initiatives and Progress]** The Forum reviewed the recent progress in dialogues among key stakeholders, national policies and strategies and joint feasibility studies among power corporations under various initiatives of North-East Asian countries on multilateral power interconnection including "Asia Super Grid", "Northeast Asia Super Grid", "Global Energy Interconnection", "Gobitec Initiative", etc. The Forum also reviewed the current bilateral power connection between China, Mongolia and the Russian Federation, which present steady increases in the volume of electricity trade in recent years. It was highlighted that realizing multilateral power interconnection requires a multilateral platform for enhancing mutual understanding and facilitating policy dialogue and coordination.
4. The speaker from State Grid Energy Research Institute of State Grid Corporation of China elaborated the benefits of power interconnection to include reducing the electricity cost, improving energy structure and energy security, reducing greenhouse gases emissions and improving overall economic benefits of member states. The study conducted by the Asia Pacific Energy Research Center (APEREC) of Japan showed that power interconnection based on large-scale renewable project in Mongolia would bring visible environmental benefits by reducing

carbon emissions, in particular, in China and the ROK. The need and significance of “renewable” power grid interconnections were further highlighted, by the speaker from the Macquarie University, in the context of supporting green transition, particularly, in China, and harnessing the catalytic role of international grids in free trade of renewable power. The speaker also underscored the increasing feasibility of renewable power interconnection with falling renewable energy costs, increasing reliance on renewable power and increasing scale of financing schemes including green bond.

5. A joint study of Russian energy company En+ and Korea Electric Power Corporation (KEPCO) indicated that the establishment of a power grid involving all North-East Asian countries (excluding Mongolia) will significantly increase savings of operation expenditures including the costs in electric grid infrastructure by more than US\$ 17 billion per year in the countries. The substitution of new generating capacity by energy flows from other countries will generate more than 38 GW of power which will secure savings of investments at more than US\$ 50 billion by compensating irregularities of renewable energy by up to 16 GW.
6. To realize the benefits of power interconnection, power companies have jointly initiated feasibility studies in 2016. The speaker from KEPCO informed of the progress in the joint studies. In March 2016, State Grid Corporation of China, KEPCO, Softbank of Japan and Rosseti of the Russian Federation signed an MOU at the Global Energy Interconnection Conference in Beijing for conducting feasibility studies on the first phase of the power interconnection project. The corporations have held a series of meetings in Tokyo, Beijing and Seoul with a goal to finalize the feasibility studies by the end of 2016, and move on to the next stage from 2017 which includes developing a business model, establishing a joint development agreement and a master plan for the part of China, ROK and Japan, and conducting survey on the installation of marine cable.
7. **[Key topics and challenges in NEA power connectivity]** The Forum reviewed the agenda and main issues for implementing power interconnection. As it was indicated by the speaker from the Korea Electrotechnology Research Institute, the implementation of power interconnection projects requires different types of feasibility studies to be conducted, namely market feasibility, technical feasibility, economic, financial and environmental feasibility, as well as political feasibility that has to do with the energy security issues. Additional challenges faced by the parties include: meeting the requirements of technical and financial feasibility of building the subregional power grid, variation and discrepancy in laws and regulations on cross-border energy trade existing between countries, development of project financing model supported by governments, as well as building a sound business model that will meet the needs of all parties.
8. The Forum also reviewed cases of existing power interconnection arrangements in the EU Energy Community, ASEAN Power Utilities and Authorities (HAPUA), Latin American Energy Organization, as well as Eastern Africa Power Pool and Southern Africa Power Pool. ASEAN case, in particular, was presented in detail by the Chairman of ASEAN Power Grid Consultative Committee. The key drivers of power interconnection in South-East Asia are the existing grid infrastructure in place, diversified natural resources of the regional states and price-demand

disparity as well as the plan of ASEAN Community on physical connectivity. South-East Asia currently has nine cross-border connections and six on-going projects, which in total have the capacity of 8,500 MW. The member states plan to expand the cross-border connections to 16 with total capacity of 23,200MW. From the administrative perspective the energy cooperation is managed by HAPUA, an institution that consists of Power Utilities in ASEAN member states. The structure composes of several organs: namely Council, Working Committee, Secretariat, Power Grid Consultative Committee and five Working Groups. This structure provides the institutional and regulatory framework and addresses the issues of commercialization and harmonization of regional energy cooperation. The ASEAN case proved the importance of having all the institutional, legal, technical and economic aspects functioning in order to achieve the stable development of the power interconnection. The institutional arrangement of ASEAN Power grid can be adopted by NEA countries.

9. **[The Way forward]** The participants of the Forum presented several practical approaches to the creation of the subregional power interconnection and related institutional arrangements. The speaker from Macquarie University drew attention to the availability of green finance as a means of funding the various power grid interconnections canvassed for NEA. The representative from the Russian Energy Systems Institute suggested the creation of a NEA-wide governmental body which will be supported by non-governmental activities as well as bilateral agreements and commissions among North-East Asian countries. NEA-wide governmental body will back multilateral cooperation on power industry level to promote NEA power system interconnection. The suggestion was also echoed by the speaker from the Ministry of Energy, Mongolia, who highlighted the need to reduce non-physical barriers for energy trade and support existing bilateral projects through (sub) regional mechanisms, thereby building linkages between bilateral and multilateral projects and connecting them with regional connectivity. In this regard, the speaker suggested developing multilateral dialogue platforms that could be driven by either government or business, and strengthen them towards broader connectivity development.
10. The speaker from the Future Energy Strategy Research Cooperative based on lessons learnt from other regions presented a short-term and long-term agenda for the power cooperation in NEA. The former implies the establishment of policy dialogue channel between governments in the NEA subregion, implementation of the joint capacity building projects and establishment of business dialogue platforms. In the long run it was suggested to create an institutionalized framework for multilateral subregional energy cooperation by enacting treaty, charter and energy community at the subregional level. To address this agenda, the speaker suggested to organize working groups that would include government officials, research professionals and industry experts as well as to launch joint research on the construction of cross-border infrastructure, renewable energy, etc. In addition, it was advised to create the Energy Trade and Transit Security Dialogue mechanism in order to reduce barriers and increase volumes of trade and investment in the energy sector of the subregion. On the research side it is suggested to create a NEA Research Consortium on cross-border trade issues.
11. China Electricity Council (CEC) speaker offered an overview and outcomes of the recent NEA

Regional Power Interconnection and Cooperation (NEA-RPIC) Forum held in Beijing in October 2016. The Forum supported the idea of meeting on a regular basis annually or biannually, with the goal of concluding an intergovernmental arrangement in which ESCAP could play a catalytic role by providing a platform for multilateral cooperation. The speaker explained the significance of establishing the platform because the outcomes of several undergoing studies in parallel need to be shared and the similar activities are better to be combined.

12. In this connection, the speaker presented the initial concept the NEA-RPIC and its terms of reference and proposed ESCAP to be a co-coordinator for its forum as well as other activities. The NEA-RPIC forum would bring representatives from governments, international institutions, power utilities, power companies, consulting firms and research institutes to share information of latest progress by studies and cooperation in the subregion and promote intergovernmental cooperation. NEA-RPIC forum and meetings could be held in all NEA countries on the basis of rotation. In addition, working groups could be established to support the forum and carry out joint research. ESCAP took note of CEC proposal and requested CEC to present terms of reference to the first session of the Energy Committee to be held on 17-19 January 2017 in Bangkok.