

POWER INTERCONNECTIONS IN NORTHEAST ASIA



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KOREA ELECTROTECHNOLOGY RESEARCH INSTITUTE

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I. INTRODUCTION

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❑ Most regions with interconnection of power systems under operation, construction or planning

❖ Mutually beneficial : reduction of investment or operation costs, enhancement of reliability, relief of uncertainty and alleviation of regional conflict

❑ Northeast Asia : Why not and how to do?

II. ELECTRICITY INDUSTRY

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□ Present status of electricity industry in NEA

	ROK (2002)	DPRK (?)	RUSSIA (2001)	MONG.	CHINA (2002)	JAPAN (2001)
Peak Demand[GW]	46	?	145	?	?	182
GenCap.[GW]	53	7-8	215(57)	≈ 1	350	230
Elec. Gen. [TWh]	303	?	891	≈ 3	1,640	924
Increase Rate[%]	3.4	≈ 0	2-4	?	5.6	1.4

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II. ELECTRICITY INDUSTRY



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□ China and Japan

❖ Not to make clear mention on inter-state connection

- KYUSYU Electric Power Company seems to have a little interest
- Northeast area of China seems to be able to expect some benefit from NEAREST

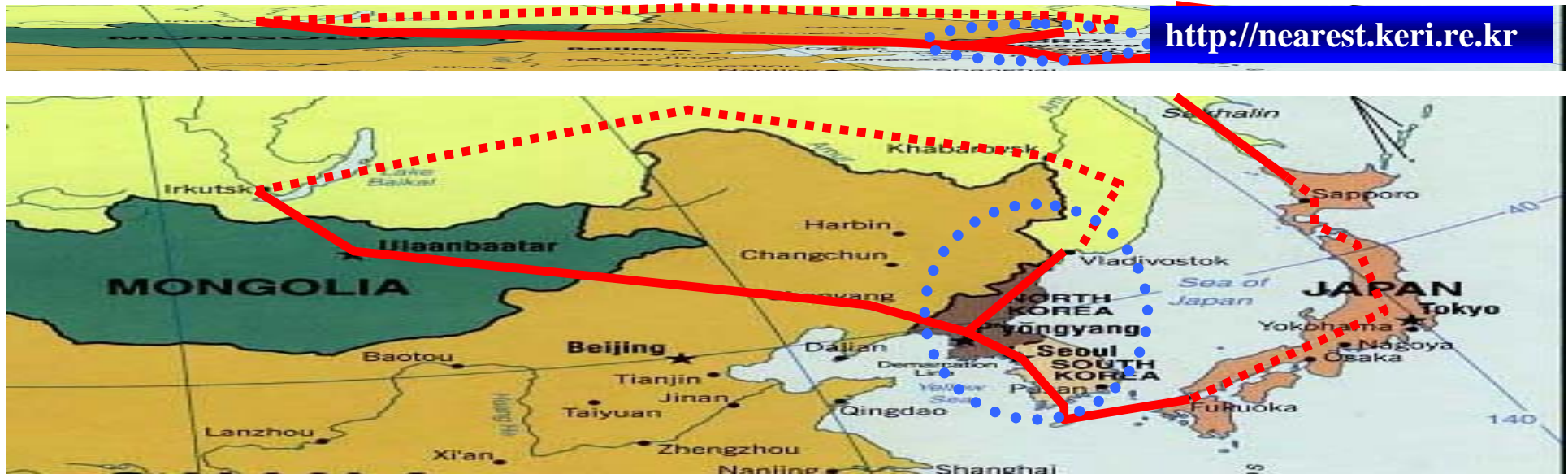
□ Mongolia

❖ To have shown a deep interest and ready to cooperate

□ Russia, DPRK and ROK

❖ To seem positive and cooperate together

II. ELECTRICITY INDUSTRY



To have started a research project on NEAREST sponsored by the Korean government

North-East Asian Region Electric System Ties : **NEAREST**

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R.O.Korea ⊕ D.P.R. Korea ⊕ Russia, Mongolia, China, Japan

III. ACTIVITIES FOR NEAREST



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□ Between ROK and DPRK

- ❖ ROK was requested to supply electricity through T/L
- ❖ How to supply electricity to Gaesung industrial complex must be cleared
- ❖ Some experts are concerned about stable operation of Shinpo nuclear plant under construction
 - Too large unit capacity, low reliability and poor power quality
 - System interconnection with neighboring countries seems to be one of best countermeasures

III. ACTIVITIES FOR NEAREST



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❑ Between Russia(RAO EES Rossii) and DPRK

- ❖ To have signed MOU for constructing an interconnection T/L [DC \pm 500 or 600kV, 375km] from Vladivostok to Cheongjin for supplying 500 MW to DPRK and extending this T/L to ROK in the future
- ❖ DPRK told that they would design and construct a part, placed in its territory, of this T/L by themselves using materials and equipment supplied by others(?)
- ❖ Permitted to construct one route of T/L, ...therefore, 2-circuit T/L

III. ACTIVITIES FOR NEAREST



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□ Between ROK and Japan

- ❖ There was unofficial talks on interconnection between KEPCO and Kyusyu Power Co.

□ International organizations and research institutes

- ❖ APEC and APERC, UNESCAP, IEA, ESI, KEEI, KERI, NI...

III. ACTIVITIES FOR NEAREST



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□ Three-side meeting : Russia, DPRK and ROK

❖ **VOSTOKENERGO and ESI in Russia, DPRK and KERI**

❖ **To have been held in Khabarovsk during Aug. 13 to Aug. 16, 2003 for discussing how and for what to cooperate**

➤ **Agenda : Exchange of data, set-up of domestic research team and organization of international symposium**

❖ **The 2nd meeting if DPRK would accept to exchange data**

➤ **At the beginning of this November**

IV. PLAN FOR NEAREST



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□ To build government-level cooperation system

- ❖ To have to show the technical, economic and market feasibility
- ❖ To make an institutional structure and compulsory and legal basis(for example : European Energy Charter Treaty)

□ Research project on NEAREST

- ❖ To be sponsored by the Korean government
- ❖ To be managed by KERI with several domestic and overseas participating organizations
- ❖ To be carried out from Dec. 1, 2002 to Nov. 30, 2005

IV. PLAN FOR NEAREST



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□ Scope of the project

- ❖ To evaluate technical feasibility for finding out feasible scenarios considering characteristics of power system including load, reliability, type of power exchange and right of way(route)
- ❖ To evaluate economic feasibility for selecting best scenarios considering investment on generation and transmission, operation costs and environmental impact
- ❖ To evaluate market feasibility for identifying barriers against **NEAREST** and finding out countermeasures to overcome them

IV. PLAN FOR NEAREST



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❑ To be building up international cooperation

- ❖ To have signed MOU for cooperation with APERC, ESI and VOSTOKENERGO in Russia
- ❖ DPRK has set up research team and is positively considering cooperation in NEAREST

❑ To hold an international symposium on NEAREST

- ❖ To be hopefully organized by KERI, VOSTOKENERGO, UNESCAP, APERC, IEA
- ❖ At Jeju island next April

V. CONCLUSION



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- ❑ We are trying to find out answer to the question, “whether will **NEAREST** be mutually beneficial ?” and also will try to make it feasible if “yes”
- ❑ We will do our best to find out answers and solutions which can be accepted by participating organizations by joint work