

**14th Expert Working Group Meeting on Energy and Environment: Toward Clean Energy
Honolulu, Hawaii, April 21-23, 2014**

Dr. Lee-Jay Cho welcomed participants and introduced the 14th *Expert Working Group Meeting on Energy and the Environment: Toward Clean Energy* during another beautiful day in Honolulu, Hawaii.

Governor Stephen Cowper and Dean Denise Konan from the University of Hawaii moderated the first session on Clean Energy Policies and Energy Security: Country Perspectives.

The first speaker, Yasuo Tanabe presented on Japan's perspective and highlighted Japan's current energy mix for electricity generation including a drop of nuclear energy use from 30 percent down to two percent. In terms of strategic energy planning, nuclear is still an important base load power source and the government is assisting in overseeing the amount of power generated by nuclear plants. The price of LNG imports to Japan is higher than that compared to Western countries. It would help reduce energy costs when the nuclear power plants are restarted. Before the tsunami and earthquake of March 2011, 48 power plants were in operation, but all have been suspended and new regulations are being set up. Japan is in the process of energy reform and there should be full retail competition in 2016 to help secure a stable power supply capacity.

Dmitry Reutov, a former Young Leader in the 8th annual YLP held in Vladivostok, Russia presented Russia's Role in Energy Security of the Northeast Asia. Russia's energy strategy includes increasing oil and gas exports up to 25 percent and 20 percent respectively in the Asia-Pacific. In 2012, the largest importer of Russian oil and gas is Eastern Europe. In 2012, 8.4 percent of China's oil, 3.9 percent of Japan's oil, and 7.2 percent of South Korea's oil comes from Russia. The LNG plant on Sakhalin produces an annual capacity of 10 million tons of LNG. In 2013, the top exporter of Russian-produced LNG was Japan followed by South Korea and China. Currently an LNG plan in Vladivostok is being planned.

Oh Sung-Hwan next presented on the Overview of Korea's Energy Cooperation Diplomacy. Korea is the eighth largest consumer of energy in the world with limited energy resources and an approximate 96.4 percent dependence on energy imports. The highest percentage of energy comes from oil at 38.5 percent in 2011 which is mainly imported from Middle Eastern countries. Korea has increased its dependence on LNG, but nuclear energy consumption has been limited since the Japan tsunami and earthquake. Korea's energy policy includes the need to decrease dependence on coal and oil, increase the use of renewable energy, and implementing LNG such as shale gas from North America. Korea has been active in participating in activities for energy cooperation such as hosting the first and second International Shale Gas conference in Seoul and first International Seminar for Renewable energy.

The next two speakers presented varied perspectives in terms of energy in Hawaii. Ray Starling presented, Hawaii Energy: Conservation and Efficiency program by first introducing the problem of bringing fuel to the islands to support the energy needs. He shared that the difficulty for Hawaii is in that it is an island and is subject to high prices in oil through added expenses of shipping costs. Eighty percent of electricity comes from oil in Hawaii. The average residence in Hawaii uses 615 kWh per month and spends about \$210-\$270 per month on electricity. LEIDO's is contracting with the Hawaii Public Utilities Commission (PUC) on a project called Hawaii Energy and described it as a way to incentivize energy savings to consumers. He shared that an evolution of the current energy state in Hawaii is necessary. There are some tips that individuals can start to do to help.

James Griffin's presentation, Progress Updates on Hawaii Clean Energy Policies, emphasized Hawaii as a test bed for clean energy innovation. He discussed challenges to energy in Hawaii including continued high dependence on fossil fuel, grid integration, diverse portfolio and optimal resource mix, and future energy demand. Solutions include long term planning under future uncertainty.

Session two, moderated by Tanabe Yasuo on Clean Energy Policies.

Yimei Wong presented Build Your Dreams (BYD): Inflection Point to Innovation Plug & Play, which showcased the company's history and growth and highlighted its five-year plan for future energy solutions. One current project is the Chevron micro grid system in Oahu.

Richard Rocheleau's presentation Pathway to Lower Cost Electricity in Hawaii discussed the complication of integrating renewable energy sources due to small isolated grids and not having resources and people in the same place. He described several studies on integrating in Hawaii and emphasized that continued research is necessary. Future work will evaluate strategies that can push the renewable penetration limit further and reduce operating cost through modifications in up-reserves and down-reserves strategies including storage options and other modifications in unit commitment and dispatch. Further research is also needed to establish stability and reliability of the transmission system under high penetration of renewables and evaluate the impact on distribution grid with high penetration of solar.

In his presentation, Hawaii's Energy Future: Major Focus Areas Scott Seu described the transition to the new energy future through a movement from fossil fuels to clean energy, from a vertically integrated utility to an integrated grid, and introduction of more flexible small generators. There can no longer be transmission and distribution in one direction or a one size fits all model, but rather more flexibility and input from consumers are necessary for a successful energy future in Hawaii.

Terry Surles presented Comments on Energy Policy and Technologies. GHG emissions accelerate despite reduction efforts. Most emission growth is CO₂ from fossil fuel combustion and industrial processes. The US energy consumption has not increased in the past ten years. Natural gas has seen considerable growth in the electricity sector. With the advent of fracking, natural gas prices have plummeted. With the decrease of coal use in US, the country has become a more significant exporter of coal. Nuclear energy in the U.S. has seen an excellent record of safety and production. All plants are expected to operate for at least 60 years and possibly 80 years. The states (PUCs) are becoming more aggressive (and flexible) in developing policy instruments. The key for sustainable, secure futures includes developing security and scalability in energy, increasing value to consumers and ROI, and highlighting the continued necessity for equity, and education.

Terry Surles moderated Session 3 on the Challenges and Solutions for Low Carbon Future.

Yoshiki Iinuma presented on the Prospects for the Cross-Border Power System in Northeast Asia. The electricity supply in China is public and unbundled, in Japan it is private and vertically integrated, and in Korea, Mongolia and Russia it is public and private unbundled. The ASEAN power grid is one of pillars to integrate ASEAN economies. The objectives include achieving economic and technical interconnectivity among member countries and fostering cooperation and good relationships between those countries. The project runs from Korean to Southeast Asia, Australia and New Zealand connecting transmission lines in an undersea grid from Malaysia to Sarawak. The GOBITEC and Asian Super Grid for renewable energy in Northeast Asia begins with installation of 100 GW of wind and solar in the Gobi desert in Mongolia and connecting transmission lines to Russia, Japan, Korea and China. The feasibility is still doubtful and the safety issues with North Korea.

Mitsuho Uchida presented on Challenges for Low Carbon Future. Climate change has had a significant impact on the global economy including lower yields on food production, increased displacement of communities due to rising sea levels and increase in extreme weather. Clean energy is more crucial than ever to combat these problems and there is only about 15 years remaining before it becomes very serious. Developed and emerging economies must take serious notice and find solutions immediately. This requires many changes including reduction in fossil fuels and increased cooperation. The energy policy in 21st century will be driven by the triple challenges of substantial reduction in emissions of greenhouse gases, at least 40 percent compared with 2010 level by 2050 mainly based on energy conservation; ensuring a secure supply of energy; and that energy must be supplied to the economy at reasonable costs for promoting economic competitiveness and peoples welfare.

The final presentation was given by Shi Dinghuan on the Development Statuses of Renewable Energy in China and Cooperation Outlook with Northeast Asia. China's use of energy structure has improved since 1990 with renewable energies reaching 9 percent in 2012. China is cultivating energy from wind, solar, biomass, geothermal, and biodiesel. The major targets of the twelfth five-year plan from 2011-2015 includes increasing renewable energy to over 11 percent of total energy consumption, hydropower, wind power, solar power, and biomass diversification to play a pivotal role in the renewable energy system, and achieving a higher degree of popularity for both urban and rural renewable energy.

AGENDA

**14TH EXPERT WORKING GROUP MEETING ON
ENERGY AND ENVIRONMENT:
TOWARD CLEAN ENERGY**

Honolulu, Hawaii, April 21-23, 2014

Organized by

The Northeast Asia Economic Forum
College of Social Sciences, University of Hawai'i at Mānoa

In Cooperation with

Hitachi
Hawaiian Electric Co.
Hawaii Natural Energy Institute
Others

The New Otani Kaimana Beach Hotel
(Sans Souci Banquet Room)
2863 Kalakaua Avenue
Honolulu, HI 96815
Tel: (808)923-1555 Fax: (808)922-9404

DAY 1, APRIL 21, 2014

18:00–20:30 Welcoming Dinner

Maple Garden Restaurant

Tel: (808)941-6641

Introduction: **Lee-Jay CHO**, Chairman, NEAEF

Denise Konan, Dean, CSS, UHM

Welcoming Remarks: **George ARIYOSHI**, Former Governor of Hawaii and Chairman, Board of Directors, HAPI

DAY 2, APRIL 22, 2014

8:45–9:15 Registration/Coffee and Tea

9:15–9:35 Introductory Remarks

Lee-Jay CHO, Chairman, NEAEF

9:35–12:00 SESSION 1: CLEAN ENERGY POLICIES AND ENERGY SECURITY– COUNTRY PERSPECTIVES

Moderated by Denise Konan and Steve Cowper

9:35–9:55 **TANABE Yasuo**, Executive Vice President, Government and External Relations, Hitachi, Japan and Former Director General, Economic Security, Ministry of Foreign Affairs, Japan

9:55–10:15 **Dmitry REUTOV**,
Far Easter Federal University and Sakhalin Pipeline Project

10:15–10:35 COFFEE/TEA BREAK

10:35–10:55 **OH Sunghwan**, Director of Energy Security Division, Ministry of Foreign Affairs, Korea

10:55–11:15 **Ray STARLING**, Program Manager, Hawaii Energy at Leidos Engineering, *Energy Efficiency in Hawaii*

11:15–12:00 **James GRIFFIN**, Director of the Planning and Research, Hawaii PUC

12:00–12:15 DISCUSSION

12:15–13:45 Bento Lunch

13:45–16:00 SESSION 2: CLEAN ENERGY POLICIES - CONTINUED

Moderated by TANABE Yasuo

13:45–14:05 **Yimei Wong**, Vice-President, Build Your Dreams (BYD)
Renewables, Americas

The future of energy and onward innovative designs to plug & play

14:05–14:25 **Richard ROCHELEAU**, Director, Hawaii Natural Energy Institute,
Status of Hawaii-based projects

14:25–14:45 COFFEE/TEA BREAK

14:45–15:05 **Scott SEU**, Vice President, Hawaiian Electric Co.,
Status of HECO activities

15:05–15:25 **Terry SURLES**, UH/College of Social Sciences Lead, Initiative for
Sustainable Energy & Environment Solutions, *Status of US Policy*

15:25–16:20 DISCUSSION

DAY 3, APRIL 23, 2013

9:00–10:00 SESSION 3: CHALLENGES AND SOLUTIONS FOR LOW CARBON FUTURE

Moderated by TERRY SURLES

9:00–9:40 **IINUMA Yoshiki**, Director, Research Department, Japan Electric
Power Information Center (JEPIC) & **UCHIDA Mitsuho**, Former
Director, Central Research Institute of Electric Power Industry;
Visiting Professor, Chukyo University, Japan

9:40-10:00 **SHI Dinghuan**, State Counselor, China State Council and
Chairman, China Renewable Energy Society, P.R. China.

10:00-10:15 COFFEE/TEA BREAK

10:15–11:00 Round Table Discussion

Moderated by Lee-Jay CHO and Terry SURLES

11:10–12:00 Policy Recommendations and Conclusion

Lunch (on your own)

LIST OF PARTICIPANTS

George ARIYOSHI, Former Governor of Hawaii and Chairman, Board of Directors, HAPI

Daniel AKAKA, Former U.S. Senator, Hawaii

Chasuta ANUKOOLTHAMCHOTE, HECO, Honolulu, Hawaii

Lee-Jay CHO, Chairman, Northeast Asia Economic Forum

Steve COWPER, former Governor of Alaska

James GRIFFIN, Director of the Planning and Research Section, Hawaii PUC

KIM Nam Ho, MANAGER, SK E&S, SEOUL KOREA

IINUMA Yoshiki, Director, Research Department, Japan Electric Power Information Center (JEPIC)

Kang Kym Gu, Deputy Consul General, Korean Consulate, Honolulu, Hawai'i

KIM Hyun-Oh, Consul for Political Affairs, Korean Consulate, Honolulu, Hawai'i

Denise KONAN, Dean of the College of Social Sciences, University of Hawaii at Manoa

Dmitry REUTOV, Lead Manager of Department of Infrastructure and Oil and Gas Projects, JSC Vladivostok

Richard ROCHELEAU, Director, Hawaii Natural Energy Institute

Scott SEU, VP, Hawaiian Electric Co.

Dinghuan SHI, Counselor, China State Council and Chairman, China, Renewable Energy Society, P.R. China

SAITO Shunsuke, Consul, Japanese Consulate, Honolulu, Hawaii

SHIGEEDA Toyoei, Consul General of Japan , Honolulu, Hawaii

Ray STARLING, Program Manager for Hawaii Energy at Leidos Engineering

OH Sunghwan, Director of Energy Security Division, Ministry of Foreign Affairs (email: ohsung5@hanmail.net).

Kenji SUMIDA, Former President, East West Center and Secretary General, North America Committee, NEAEF

Terry SURLES, Lead for the Sustainable Energy and Environment Initiatives, UH/College of Social Sciences

TANABE Yasuo, Executive Vice President, Government and External Relations Division, Hitachi

UCHIDA Mitsuho, Former Director, Central Research Institute of Electric Power Industry; Visiting Professor, Chukyo University, Japan

Yimei WONG, VP, BYD Renewables Americas

Forum Staff

Diana Shaoqian Lu, Assistant Coordinator for NEAEF Energy Meeting, College of Social Sciences, University of Hawaii at Manoa

Ivy YEUNG, Staff, Northeast Asia Economic Forum

Darren Hakoda, Staff, Northeast Asia Economic Forum