



AESIEAP 2009 CEO Conference Summary

The AESIEAP 2009 CEO Conference, a grand event held every two years, was successfully wrapped up on Oct. 16. There were 184 delegates from 17 countries who attended the Conference.

Based on the main theme of the Conference, “Challenges and Opportunities of the Electric Power Industry in an Uncertain Era”, Taiwan Power Company divided the program into three main topics for panel discussion: 1) Business Outlook and Strategy of Electric Power Industry; 2) Technology Development and Investment of Electric Power Industry; and 3) Strategies for Energy Efficiency and CO₂ Reduction. Most important of all, the topic of the keynote speech was “Creating a Secure Low Carbon Future”.

The AESIEAP 2009 CEO Conference commenced with the Welcome Reception. It was not only a great chance for the delegates to unwind after their long trips, but also a warm-up for the conference that took place over the following two days. The President of AESIEAP, Mr. Edward K.M. Chen, extended his sincere welcome to all delegates and wished all of them a most enjoyable and rewarding time over the next two days in Kaohsiung, Taiwan, encouraging them to enjoy the friendliness and warm hospitality of the local citizens. During the three-day Conference, three entertaining cultural programs incorporating various musical styles were delivered each night. At the Welcome Reception, GNF Pop Jazz opened the first performance by playing famous Chinese songs in the style of jazz. Every delegate at the Welcome Reception was able to relax and enjoy the nice music and to interact with others. The Sponsor of the Welcome Reception, the Bureau of Energy of the Ministry of Economic Affairs, received a plaque from Mr. Chen for its generous support.

On the morning of Oct. 15, before the Opening Ceremony, the executive committee and council members of AESIEAP gathered together and exchanged greetings in the VIP Room. During the ceremony, Mr. Edward K.M. Chen, as the president of AESIEAP, expressed his sincere appreciation to all the representatives from different areas who had joined the Conference. He then shared how AESIEAP, over the past 34 years since its founding in 1975, has continuously promoted the exchange of expertise and technology, has researched the problems the electric power industry faces and has facilitated the sharing of business experiences. Mr. Chen stressed that as society advances, so does its daily usage of electric power, meaning that an increased demand for electricity is inevitable. From 1990 until now, the world’s output of electricity generation has increased at an average annual rate of 2.9 percent. As part of the global village, the electric power industry, according to Mr. Chen, must think about how to provide a reliable supply of electricity while being environmentally responsible and making every effort to reduce carbon emissions. Therefore, in light of this and in order to come

up with a solution, the Conference chose as its theme “Challenges and Opportunities of the Electric Power Industry in an Uncertain Era.”

It was a pity that both Dr. Yen-Shiang Shih, the Minister of Economic Affairs, and Mr. Huey-Ching Yeh, the Director General of the Bureau of Energy, Ministry of Economic Affairs, were unable to attend, but they both conveyed their wishes that the Conference would be a great success. Moreover, Ms. Chu Chen, the Mayor of Kaohsiung, was also unable to attend the Conference personally, but the representative from the Economic Development Bureau of the Kaohsiung City Government was able to extend a hearty welcome on her behalf.

Following the Opening Ceremony, Mr. Chen introduced the keynote speaker, Dr. Steven R. Specker. As the President and CEO of the Electric Power Research Institute, and drawing on his exceptionally strong technical and business background and highly respected knowledge of the electricity enterprise, Dr. Specker delivered an excellent speech.

Keynote Speech: Creating a Secure Low Carbon Future

Speaker: Dr. Steven R. Specker, President and CEO of the Electric Power Research Institute (EPRI), USA.

- De-carbonize electricity Infrastructure:
 - * Difficult challenge but one we must take on around the world.
 - * Must continue to provide reliable, affordable and environmentally responsible electricity to consumers.
 - * Two most important keys we must focus on: (1) CO₂ emissions (2) Cost of electricity
 - (1) US challenge in CO₂: starting point is about 6 billion tons per year. Targeted reduction 83% by 2050 (1 billion). 2020 requires a 17% reduction. To reduce by 80% by 2050 is a big challenge to the U.S. as well as to every other country.
 - (2) Cost: for the last forty years in the U.S., the retail price has been flat. On average, no increases in the price of electricity.
- Understanding the Challenge: two analytical models used in EPRI.
 - (1) Bottoms-up “Prism” Technology Analysis
 - * EPRI Prism Target
 - (a) Efficiency: 8% additional consumption reduction by 2030 (blue sector)
 - (b) Renewables: achieve 135 GWe by 2030. (green sector)
 - (c) Nuclear: (big challenge) Increase to 64 GWe by 2030 (yellow sector)
 - (d) Fossil Plants: 49% new coal; 70% new NGCCs by 2030 (red sector)
 - (e) Carbon Capturing Storage (CCS): (big contribution) All new plants 90% capture for new coal (orange sector)
 - * Message here: We need to use all technologies, which have to be aggressively pursued, to achieve target.
 - (2) Tops-Down “Merge” Economic Analysis

- * The impact of carbon policy is on GDP, on price, on the economy.
 - * In either case (limited portfolio or full portfolio) to meet the carbon capture, we need aggressive energy efficiency and there will be a significant demand reduction in the U.S. relative to having no carbon policy.
 - * Key here: the role of gas will expand rapidly if uncertainty exists.
 - * By 2030, remarkable differences between two cases, limited and full portfolio. They will be totally different futures in 2050.
 - * Many people around the world prefer the limited portfolio (lots of renewables, not so much nuclear), the only issue is the cost of electricity.
 - * By 2020, the cost of CO₂ will be over 50 dollars per ton and will escalate higher and higher rapidly.
 - * Increase in the electricity cost: Limited Portfolio 2050 is 210% and Full Portfolio 2050 is 80%.
 - * For decarbonizing from 2030 to 2050, natural gas is not the magic solution, it feels good for a while, but it becomes very difficult to continue to reduce CO₂.
- Meeting the Challenge:
- * Breakthrough technology innovation is required to de-carbonize while achieving a cost of electricity near today's level.
- Conclusion:
- * Technology and policy will shape energy change to 2050. Policy is of tremendous importance to technology. The technology challenge is extremely important for the welfare of humans.

Following this speech, Mr. Edward K.M. Chen presented a plaque and gift to Dr. Steven R. Specker for his inspiring speech. Then, the executive committee and all the council members of AESIEAP gathered for group photos.

Panel Session I discussed "Business Outlook and Strategy of Electric Power Industry". Mr. Vikram Budhraj, the CEO of the Electric Power Group, was invited to be the chair and Mr. Zhenhua Xie, the Vice President of the China Electricity Council, and Mr. Doo Jai Park, the Vice President of the Korea Electric Power Corporation were the panel speakers.

Panel Session I: Business Outlook and Strategy of Electric Power Industry

Chair: Mr. Vikram Budhraj, CEO of the Electric Power Group, USA

Panel Speakers:

Mr. Zhenhua Xie, Vice President of the China Electricity Council, China

Mr. Doo Jai Park, Vice President of the Korea Electric Power Corporation, Korea

- Additional power supplies will be needed to meet demand growth.
- New power supplies need to come from low carbon or carbon-free technologies such as efficiency wind, solar, nuclear, carbon sequestration.
- Innovation is important to push forward the world power industry – electricity prices are expected to rise with green growth, a low carbon future, and technology innovation being key to

limiting price increases.

- Technologies will drive the world power industry – smart grid, energy efficiency, storage, superconductors, synchrophasors – are all going to be important drivers.
- Industry has the opportunity to diversify supply portfolios, integrate new technologies, create new engines of economic growth, provide new jobs in green industries, and promote cross border trade.
- Major uncertainties and challenges:
 - * Regulatory policy
 - * Land use and siting of wind and solar that require large land areas and new transmission to load centers.
 - * Technology challenges
 - * Smart grid technology integration
 - * Cost of renewables - increasing prices
 - * Financial crises
 - * Industry cooperation to promote technology innovation
- Great Achievements of China's Power Industry
 - * Optimized Thermal Power Structure
 - * Technology breakthrough and equipment update
 - * Energy saving and emission reduction
 - * Power institutional reform and market reform
- Challenges to power industry in China
 - * The mission of power industry development is still tough to accomplish
 - * Electrification is still to be improved
 - * Still a long way to go for regular pollution control, with increasing pressures for CO₂ emission reduction
- KEPCO set a green vision of "KEPCO, leading the creation of green value" and targeted its green revenue in 2020 at 11.3 billion dollars. KEPCO also aims to reduce CO₂ emission intensity by 30% compared to that of 2000.

Mr. Franklin Willemys, the CEO of Companhia de Electricidade de Macau, presented plaques and gifts to three of the Panel I speakers for their participation.

Following Panel Session I, the council members were invited to attend the AESIEAP Executive Committee and Council Meeting. As for the rest of the delegates, about 70 delegates joined the half-day tour, "Discover Kaohsiung". Upon hearing the explanations provided by the professional narrators of the Kaohsiung City Government, the delegates gained a deeper understanding of the Formosa Boulevard Station and the Kaohsiung Museum of History.

The dinner that evening began in dramatic fashion as the Zuyun Culture Music & Dance Troupe welcomed the delegates at the main entrance with their special dance. During dinner, they presented

Taiwanese Aboriginal culture through distinctive music and dance, performing in a style which has become famous around the world. During the dinner, Mr. Edward K.M. Chen expressed his deepest gratitude to the sponsors who fully supported the Conference. At the same time, he presented plaques to each of the sponsor representatives, Mr. Xin-Tsun Liu, the Director General of the Economic Development Bureau of Kaohsiung City, Mr. Yuan-Hsuan Lee, the Chairman of the Taiwan Cogeneration Corporation, Mr. Kong Wei Wang, the Chairman of Ever Power IPP Co., Ltd., Mr. John T. Yu, the Chairman of CTCI Corporation, Mr. Andrew Tsai, the President of E&C Engineering Corporation and Mr. Albert Wong, the President of Kuo Kuang Power Co., Ltd. All of them joined in raising a toast to celebrate the opening.

After the dinner, the delegates were invited to take a walk along the bank of the Love River, enjoying the famous night view which attracts many tourists. In return for their full day of work at the Conference, delegates were served two free drinks at a riverside Café. Thus, with the pleasant landscape and great atmosphere, the first day of the Conference came to a perfect ending.

Panel Session II on Day 2 discussed “Technology Development and Investment of Electric Power Industry”. Dr. Oliver Yu (President of the STARS Group, USA), as the chair of Panel Session II, led the panel speakers, Mr. Mamoru Dangami (Executive Vice President of Kyushu Electric Power Co. Inc., Japan) and Mr. Sombat Sarntijaree (Governor of the Electricity Generating Authority of Thailand, Thailand), to share their knowledge.

Panel Session II: Technology Development and Investment of Electric Power Industry

Chair: Dr. Oliver Yu, President of the STARS Group, USA

Panel Speakers:

Mr. Mamoru Dangami, Executive Vice President of the Kyushu Electric Power Co. Inc., Japan

Mr. Sombat Sarntijaree, Governor of the Electricity Generating Authority of Thailand, Thailand

- The electric power industry is resource-intensive and technology-extensive.
- Technology development and investment planning have always been an integral part of electric power industry strategic planning.
- Given the global concerns on carbon emission control and reduction, Kyushu Electric Power of Japan and the Electricity Generating Authority of Thailand have, together with many other AESIEAP electric power companies, correctly identified and emphasized the critical importance of both nuclear power and renewable energy in their long-term planning.
- However, given the continued volatility and uncertainty in the technology, economic, and socio-political environment of the electric power industry, a systematic, innovative, and proven process using scenario and portfolio analysis for effective and robust technology development and investment portfolio planning will be essential for the electric power industry to meet current challenges and ensure future success.

At the end of Panel Session II, Mr. Bambang Praptono, one of the AESIEAP Council Members and also

the Director of PT PLN (Persero) represented AESIEAP as he presented plaques and gifts to all three Panel II speakers and thanked them for their contribution to the AESIEAP 2009 CEO Conference.

After a short tea break outside the Golden Phoenix Room, Panel Session III began at 10:30.

In Panel Session III, the chair, Mr. Masahiro Kakumu (President of the Central Research Institute of the Electric Power Industry (CRIEPI), Japan), and the panel speakers, Mr. Datuk Wira Md. Sidek bin Ahmad (Former Senior Vice President of Tenaga Nasional Berhad (TNB), Malaysia) as well as Mr. Bambang Praptono (Director of PT PLN (Persero), Indonesia) exchanged their opinions regarding the theme, Strategies for Energy Efficiency and CO₂ Reduction.

Panel Session III: Strategies for Energy Efficiency and CO₂ Reduction

Chair: Mr. Masahiro Kakumu, President of the Central Research Institute of Electric Power Industry (CRIEPI), Japan

Panel Speakers:

Mr. Datuk Wira Md. Sidek bin Ahmad, Former Senior Vice President of Tenaga Nasional Berhad (TNB), Malaysia

Mr. Bambang Praptono, Director of PT PLN (Persero), Indonesia

- These presentations emphasized that "Strategies for energy efficiency and CO₂ reduction" are critical international issues.
- It could also be concluded that delaying the onset of further global warming by means of adequate countermeasures is the major challenge our generation faces.
- Mr. Datuk Wira Md. Sidek Bin Ahmad explained the status of climate change all over the world. In addition, he also presented the role of TNB, Malaysia, HAPUA and AESIEAP.
- Mr. Bambang Praptono described the efforts of PT PLN to improve energy efficiency and renewable energy development in Indonesia.
- CRIEPI assessed the potential CO₂ emission reduction in the Japanese electricity sector through 2050.
- All possible technologies have to play their roles in order to achieve the target; they include nuclear power generation and renewable energy, the improvement of energy conversion efficiency for fossil-fired power generation, the co-firing of biomass, and CCS in addition to energy saving and the promotion of electrification.
- Nuclear energy is expected to play a key role in CO₂ emission reduction ensuring safe operation.
- For thermal power plants, each country must make the maximum effort to improve efficiency. Therefore, technology transfer is quite important.
- The introduction of renewable energy is expected. In the case of solar power or wind power, the development of grid stabilization technology is a key issue.
- A reduction of CO₂ emissions can be expected with electrification, with examples such as electric vehicles, heat pumps and so on.

- We can conclude that the electric power industry has an important role to play in CO₂ emission reduction all over the world.
- It is necessary to construct a worldwide cooperative relationship that includes AESIEAP and to work on global warming preventive measures together.

To express appreciation for the great support of the three speakers, Mr. Sombat Sarntijaree (Governor of the Electricity Generating Authority of Thailand, Thailand) presented plaques and gifts to them at the end of Panel Session III on behalf of AESIEAP.

After lunch, the technical visit took 50 delegates to visit the Hsinta Power Plant (the plant) owned by Taiwan Power Company, after which the delegates took part in a Tainan Cultural Tour. Mr. Chung-Tsai Lu, Director of the plant, welcomed the delegates and explained to them the features of the plant; he also introduced the plant's offshore coal unloading port. Finally, Mr. Lu presented a souvenir – a fortune calf which contained desulphurization gypsum, a by-product of electric power generation – to the delegates and encouraged all of them to work to protect the environment.

The Tainan Cultural Tour took delegates to the Eternal Golden Castle, the Confucius Temple and Chi-Kan Tower. Thanks to the excellent explanations given by the tour guides from the Tainan City Government, the delegates got to know more about the history of Tainan. At the Confucius Temple, especially, many delegates were interested in Confucius and asked many questions about him, finally understanding more about how this great teacher has affected the Taiwan people.

While these activities were taking place, the AESIEAP 2009 CEO Conference had arranged an additional Electricity Utility CEO Roundtable Forum and invited the CEOs to attend. At the beginning, the three chairs of the panel sessions presented their summary reports. All of the CEOs discussed the issues and exchanged opinions with each other, seeking opportunities for cooperation.

Last but not least, it came time for the Farewell Dinner. The delegates relaxed at the reception cocktail held before the Farewell Dinner. Mr. Edward Chen expressed deep gratitude to all the participants, to the Kaohsiung and Tainan City Governments, to all the sponsors as well as the Conference staff, and he also wished the AESIEAP 2009 CEO Conference a successful conclusion. Mr. Chen then invited all delegates to meet in Taipei for CEPSE 2010. After his remarks, the emcee welcomed the sponsors for Oct. 16 onto the stage, including Mr. Tain-Tsair Hsu, Mayor of Tainan City, Mr. Tim Griesinger, Vice President of IBM Growth Markets, and Mr. Michael Choi, Project Manager of KC Cottrell. The president presented plaques to them and they all toasted the Farewell Dinner together.

The performance of the Tainan City Traditional Orchestra impressed the delegates with their special sounds made by Chinese traditional instruments. All of the delegates enjoyed a great meal and performance. The Dinner ended in a good atmosphere and marked a perfect ending to the AESIEAP 2009 CEO Conference.