



**Asia-Pacific
Economic Cooperation**

**EWG 02 2014A – APEC Public - Private Dialogue on Addressing
Impediments in Financing Renewable Energy**

Ho Chi Minh city, Viet Nam

August 05th – 06th, 2015

Summary Report

Purpose: Information

Submitted by: Viet Nam

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Summary Report

I. Introduction

On August 05th and 06th, 2015, the *APEC Public - Private Dialogue on Addressing Impediments in Financing Renewable Energy*, initiated by Viet Nam and co-sponsored by China and the United States, was held in Ho Chi Minh city, Viet Nam. Speakers and participants came from seven APEC member economies (Chile, Malaysia, the Philippines, Chinese Taipei, Thailand, USA and Viet Nam) and the International Center for Trade and Sustainable Development. Most of the Dialogue participants were from the public sector, academic institutions or the private sector relating to energy or finance.

The Dialogue sought to exchange information on impediments in financing renewable energy in APEC economies. It aimed also at developing recommendations as a reference tool for APEC economies to tackle the above-mentioned impediments.

II. Background

This project is designed to implement Leaders' and Ministers' notes in 2008 that "access to adequate, reliable, clean and affordable energy resources is vital to sustaining economic prosperity in the region." At the 4th APEC Energy Ministerial Meeting in 2012, Ministers reiterated their work to "develop renewable energy sources" to increase energy security, contribute to APEC's "economic development and reduce emissions of carbon dioxide and other pollutants into the atmosphere."

Furthermore, this project is also in line with instructions of APEC Ministers in 2009. During the APEC Ministerial Meeting in Singapore (2009), Ministers encouraged "officials to sustain efforts to strengthen capabilities in the area of finance." They called "upon APEC members to continue the implementation of necessary policies and measures to support finance and to continue their collaboration with their finance counterparts."

Last but not least, this project directly supports the Action Plan in the APEC Leaders' Growth Strategy (2010) with regard to renewable energy development and market-based financing.

Themes covered during the two-day event included: (i) *Overview of Financing Renewable Energy in APEC and Worldwide*; (ii) *Different Perspectives on Addressing Impediments in Financing Renewable Energy in APEC (Public sector, international*

organization, private sector, and academic sector); and (iii) Case Studies – Best Practices in Financing for Renewable Energy Projects in APEC Economies.

III. Discussion

Outcomes

The *APEC Public - Private Dialogue on Addressing Impediments in Financing Renewable Energy* included two days for presentations and discussions on the state-of-play and difficulties in financing renewable energy world-wide and across the APEC region, and recommendations on the way forward. The last session (recommendations for future activities) provided an opportunity to share what participants can take away from the Dialogue as well as to suggest potential APEC capacity-building activities to most benefit APEC member economies. Overall, the Dialogue achieved its main objectives as described in the project proposal. Moreover, all participants considered that it afforded many chances for valuable networking among representatives from the policy community, academics and private-sector actors from within and outside the APEC region.

Key Issues Discussed

Opening remarks

In her opening remarks, **Ms Pham Quynh Mai (Senior Official of Viet Nam to APEC and Deputy Director General, Multilateral Trade Policy Department, Ministry of Industry and Trade, Viet Nam)**, stressed the importance of the Dialogue in the context that renewable energy is and will remain a crucial role for economic development and social security worldwide and in each and every APEC individual economy.

Ms Pham Quynh Mai stated that in developed economies, renewable energy accounted for 15% of the total energy supply. However, in developing economies like Viet Nam, renewable energy was a relatively new and underdeveloped sector, occupying a modest proportion of the economy's total energy supply, which might be blamed for the lack and weakness of infrastructure and expertise; poor practical experience in management and operation; as well as resources constraints, particularly in terms of technology and finance. This reality had caused various difficulties and challenges on APEC' developing members, which run the risk of lagging far behind developed economies in and out of the region. According to Ms Pham, among these challenges, the insufficient provision of financial resources to serve the development of renewable energy projects could be considered the most significant barrier for APEC's developing members, as we are all aware that renewable energy projects always require huge financial and technological resources, not to mention other important factors such as management skills, human resources, and geographical location of each APEC member.

Recognizing the importance of renewable energy to the economic development and social security of the region in general and member economies in particular, in recent years, Ms Pham informed that APEC had implemented many cooperation activities

with the objective of enhancing energy efficiency and clean energy development, including diverse types of renewable energy such as solar, wind, bioenergy, etc, in order to translate sustainable development strategies of APEC and individual APEC economy into practice. APEC also prioritised and made a strong emphasis on a free and open market for the energy sector, optimizing open, transparent, and equal investment regimes in this sector, especially in renewable energy. Accordingly, a series of initiatives to promote liberalization, reduce and eliminate unnecessary barriers to renewable energy had been carried out in APEC for the past years.

Ms Pham was of the view that the development of renewable energy required various resources of investment. Thus, the Government itself would face huge challenges in building and developing this sector without cooperation and active support from the private sector, on the basis of win-win cooperation. Promoting active discussion and cooperation between the Government and the private sector to identify and address barriers to renewable energy development would be of high importance to the APEC region in general and each economy in particular.

The Senior Official expressed hope that with the active participation of scholars, policy makers, representatives from organizations and the private sector in and out of the Asia Pacific region, the Dialogue participants would be able to identify and to propose many useful and feasible initiatives, aiming to address barriers in financing renewable energy.

Dialogue's sessions

Experts provided presentations on the following topics:

1/ During Session 1 on “*Overview of Financing Renewable Energy in APEC and Worldwide*”, **Professor Terry Surles (University of Hawaii, California Institute for Energy and Environment, USA)** gave a comprehensive presentation on “Comments on Recent Variable Renewable Energy Activities – With a Focus on the US”. Professor Surles first shared information on global investment on solar and wind. He then emphasized energy consumption, primary energy production in the US. Regarding wind and solar incentives, Professor Surles gave examples of disaggregated policies and legislation, as well as information on dynamic of public/ private funding of energy technology. In addition, he highlighted some interesting facts: cost of PV modules were declining dramatically; solar installations were expanding in the American Southwest; availability of lower cost storage increased; PV continued to grow for both utilities and end-users; wind resource variability and curtailment had impacted capacity factors and profit; loss of federal production tax credit in 2013 led to significant decrease in wind development and a sharp decline in wind-related imports and exports in 2013. To sum up, Professor Surles observed that new technologies must be utilized to increase flexibility in power supply and delivery; and technologies supporting a smart grid were cornerstones for developing utility business models and meeting renewable energy goals.

2/ Various speakers presented during Session 2 on “*Different Perspectives on Addressing Impediments in Financing Renewable Energy in APEC*”.

- **Mr Nguyen Duc Cuong** divided his presentation into 6 parts: (i) Introduction, (ii) Renewable energy development – messages and policies from Government, (iii) Policy effectiveness, (iv) Financing for renewable powers, (v) Need for and contributions to APEC cooperation, and (vi) Conclusion. Mr Nguyen shared that in Viet Nam, renewable energy accounted for 6.04% in capacity and 4% in electricity generation. The Government of Viet Nam prioritized the development of power source from renewable energy, gradually increasing the proportion of electricity produced from renewable energy sources and included renewable energy in her National Green Growth Strategy and National Strategy on Climate Change. Main incentives used by the Governments are electricity purchase price incentive, tax incentive, incentives for infrastructure, land use, fees, loans etc. For on-grid based renewable energy (RE), challenges remained: subsidies in energy (for conventional sources), tariff setting up (selling price based on financing cost of buyer, lack of feed-in-tariff or low FIT), lack of RE database and planning, concerns of RE investors. For off-grid based RE electrification and other uses, challenges were: lack of central office in charge for off-grid rural electrification; price subsidy for rural electrification was less than that for conventional power grid; lack of long-term financing and finance for customers etc. In conclusion, Mr Nguyen stated that energy price reform was necessary to provide basic market conditions for RE development and it was essential to identify “who pay” for incremental cost of renewable powers.
- **Mr Johannes Bernabe, Senior Associate and Adviser, International Centre for Trade and Sustainable Development** approached the issue from perspectives of an international organization. He raised three challenges in financing RE projects: Regulatory (sequencing issue), local capability and market sophistication. To him, challenges with local capacity could be named by inadequate familiarity and competence of local banks to evaluate RE projects. In terms of market sophistication, challenges are: need for complementary market-based instruments in raising financing, bonds, loans, security, RE investment Trusts, debentures, equity crowd-funding, securitisation/ derivatives. In conclusion, Mr Bernabe recommended some policy options. Those are: regulatory review and reform through ensuring rational sequence in financing and avoiding bias against small and medium sized firms; technical assistance through bank staff training and capacity building as well as bank orientation through central bank regulations; enhance environment for market sophistication through appropriate fiscal incentives schemes and robust yet permissive regulations.
- **Mr Phichai Tinsuntisook (Chairman, Renewable Energy Industry Club, the Federation of Thai Industries)** started his presentation by citing APEC renewable energy impediments from developing economies, including, among others, plenty of feedstock available, lack of advanced technologies to reduce renewable energy production, lack of investors with technology, local financial institutions lack of renewable energy knowledge. However, Mr Tinsuntisook

believed that in the views of developed economies, impediments might be the desire of supplying technologies, easy-to-change policies, abundance of procedures and licenses, unstable politics etc. In Thailand, the Alternative Energy Development Plan is the current roadmap for renewable energy development targets with the goal of 25% renewables in total energy consumption by 2021. After introducing solar, feed in tariffs (FIT) for renewable energy and for industrial waste, investment cost estimation, Mr Tinsuntisook stressed opportunities such as FIT supporting programs, concession to the State Enterprise, recognition from financial institutions etc. On the other hand, he also stated challenges like limited grid transmissions, bulky procedures to achieve licenses, inexperience, changes in policies etc.

- **Mr Peter Cowling (Manager, Sales Team for Renewable Energy, General Electric)** approached the issue from the perspective of the private sector. According to him, key impediments to financing renewable energy in APEC are: (i) Lack of stable and effective regulation (long term targets backed by real mechanisms; transparent planning and land title arrangements; confidence that regulation will last for the investment cycle); (ii) Lack of bankable offtake arrangements; (iii) Lack of coordinated complimentary policy from donors and multilaterals. In his conclusion, Mr Cowling observed that it is essential to efficiently mobilize international investment in renewable energy in APEC and avoid large commitments to new thermal generation.
- The presentation of **Mr Vu Quang Dang (Project Manager, Quang Trung International Energy Consulting company limited, Viet Nam)** was divided into four parts: (i) Current status of renewable energy financing in Viet Nam, (ii) Financing barriers, (iii) Non-financing barriers, and (iv) Recommendations. Mr Vu reiterated that it is planned that renewable energy will account for 5.6 per cent of total capacity mix of the Viet Nam Power sector by 2020. In terms of financing barriers, he listed high upfront capital cost, lacking of financing, high and uncertain project development cost, high energy generation cost vs low FIT and subsidized conventional generation, indirect loan to investor, low CDM financing, and weak PPA negotiation and implementation. Mr Vu summed up by suggesting some recommendations for renewable energy development. Those are: higher FIT, a financing fund with long-term and incentive interest rate for renewable energy, preparation of pre-feasibility study (FS)/ FS for all potential sites and implement the bidding for the site to be developed by investors, capital grant, and project preparation grant.
- **Dr Feng-Shuo Yang (Director, Research Division V, Chinese Taipei Institute of Economic Research)** outlined his presentation into five parts: (i) Operation mechanism of RE policy, (ii) Renewable power pricing mechanism, (iii) Demonstration reward measures with financial incentives, (iv) RE project financing and (v) Conclusion. Regarding operation mechanism of RE policy, Dr Yang presented RE Development Fund, FIT, subsidy, demonstration reward, and incentives to thermal applications. In addition, he emphasized important

contributors to renewable power pricing mechanism such as RE power purchasing mechanism – FIT scheme (mechanism designs, mechanism essence, calculation formula of FIT rate, calculation parameter and content, current FIT rate), FIT mechanism and associated measures (responding to technical progress and market behaviors, responding to resource difference and market conditions, demonstration rewards to reduce investment risk, favorable financing, deregulate and improve communication) and pilot program of green power voluntary purchase. In summing up, Dr Yang provided in-depth information on APEC Green Energy Initiative (objectives, potential benefits, overall implementation framework, progress report).

5/ During Session 5 on “*Case studies - Best Practices in Financing for Renewable Energy Projects in APEC Economies*”, there were three speakers: **Professor Terry Surles**, **Ms Viviana Huerta (Expert, Renewable Energy Center, Chile)** and **Ms Nguyen Ngoc Quynh (Marketing Director, SolarBK Company limited, Viet Nam)**.

- The comprehensive presentation of **Ms Viviana Huerta** was named “Chile’s Take-off on Renewables”. She divided her presentation into several parts: (i) Chilean energy market, (ii) Non-conventional renewable energy, (iii) Financing for renewable energy projects and (iv) Final remarks. Ms Huerta reiterated that the Energy Agenda of Chile had new goals of 45% new power capacity installed from 2014 to 2025 would come from non-conventional renewable energy (NCRE). Ms Huerta introduced in details information on solar power, wind power, small hydropower, marine energy, bioenergy potential and geothermal designations in Chile. In terms of financing for renewable energy projects, she highlighted project size classification, financing options, support instruments for NCRE, self-supply at industrial level, support schemes for NCRE. Moreover, Ms Huerta stressed two interesting case studies of Tamm project (bank financing) and ‘Amanecer Solar CAP’. In summing up, she insisted that renewable energy projects at utility scale had taken off from 2014 under market conditions, with limited support and with local banks playing an essential role. However, such projects faced the challenge of lower electricity prices and improved technical conditions upon transmission on grid.
- **Ms Nguyen Ngoc Quynh** approached the issue in a presentation on “Practical Application of ESCO Model for Renewable Energy Projects in Viet Nam”. Her presentation was divided into four parts: (i) Trends in renewable energy development; (ii) ESCO model; (iii) Case studies and (iv) Potential for Solar PV Solutions. Ms Nguyen reaffirmed that in 2015 Viet Nam had net energy import and according to an EU report, by 2030 Viet Nam would have to import 50 per cent required energy. Therefore, Ms Nguyen added that it was essential for Viet Nam to apply energy efficiency technologies, transform to renewable energy sources and produce electricity by herself. After reviewing the advantages of renewable energy and interests of Vietnamese enterprises, Ms

Nguyen explained ESCO model for industrial scale solar water heaters. Although barriers remained in choosing solar water heaters (investment capital, lack of prestige suppliers, skeptics in economic efficiency, issues of operation and maintenance in long-term), ESCO Solutions are commitments in investment, efficiency and quality of services in supplying services to factories, residential areas, hotels and enterprises. She concluded her presentation by raising several case studies in solar energy and assessing potentials of solar PV in Viet Nam.

- The presentation of **Professor Terry Surles** was titled “Review of Electricity Issues and Initiatives in Hawaii and California”. After providing an overview on the North America Electric Grid, Professor Surles shared that States remain more effective in developing new policies, programs, and addressing changing utility business models. Furthermore, he was of the view that renewables continued to need regulatory, primarily State-based, support. Regarding innovative approaches to clean energy financing, Professor Surles explained in Hawaii, GEMS program would help underserved consumers finance PV panels and other clean energy improvements and in 2014, Hawaii State issued 150 million USD in green infrastructure bonds to support the GEMS program. In addition, in California, Professor Surles introduced programs developed under the 1996 de-regulation law, that are available to support energy efficiency technology for low-income households. He focused on Hawaii Clean Energy Initiative with the goals of 100% renewable energy in the electricity sector by 2045 and state-based tools such as renewable portfolio standards, net metering, FIT, reliability standards, fuel standards, and building codes. Last but not least, Professor Surles named renewable energy studies and projects in Hawaii: Oahu Wind Integration Transmission Studies, Hawaii Solar Integration Studies, Maui Smart Grid Demonstration project, Japan-US Island Grid project etc.

IV/ Conclusions and Recommendations

1/ The consensus view of the Workshop’s speakers, moderators and participants agreed that the project achieved its intended objectives. They considered the Workshop to have evaluated to be good for APEC to continue to share and discuss in-depth and various knowledge, experience and challenges on financing renewable energy from various APEC member economies. Participants also said that the Workshop had provided a great opportunity for networking with experts from within and outside APEC region.

2/ The Workshop’s participants suggested that future activities should be:

- Developing governmental-based mechanisms to encourage public – private partnerships to develop RE technologies;
- Financing appropriate new technologies that will support smart grid systems (eg Thailand has problem with utility/grid)

- Combining APEC best practices (funding mechanisms, successful programs) –
> how members can benefit from regulatory aspects;
- APEC RE Equity Fund (eg some economies have green technology funds);
- Capacity building in financial sector to better evaluate RE projects by banks;
- Capacity building in the governmental sector to better evaluate RE projects that
would be developed under public private partnerships
- Collective approaches to address financing RE issues;
- Legal aspects in RE development for the private sector;
- Storage and other technologies such as demand response to face intermittency
from renewables;
- Hold RE Investor Forum.

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