



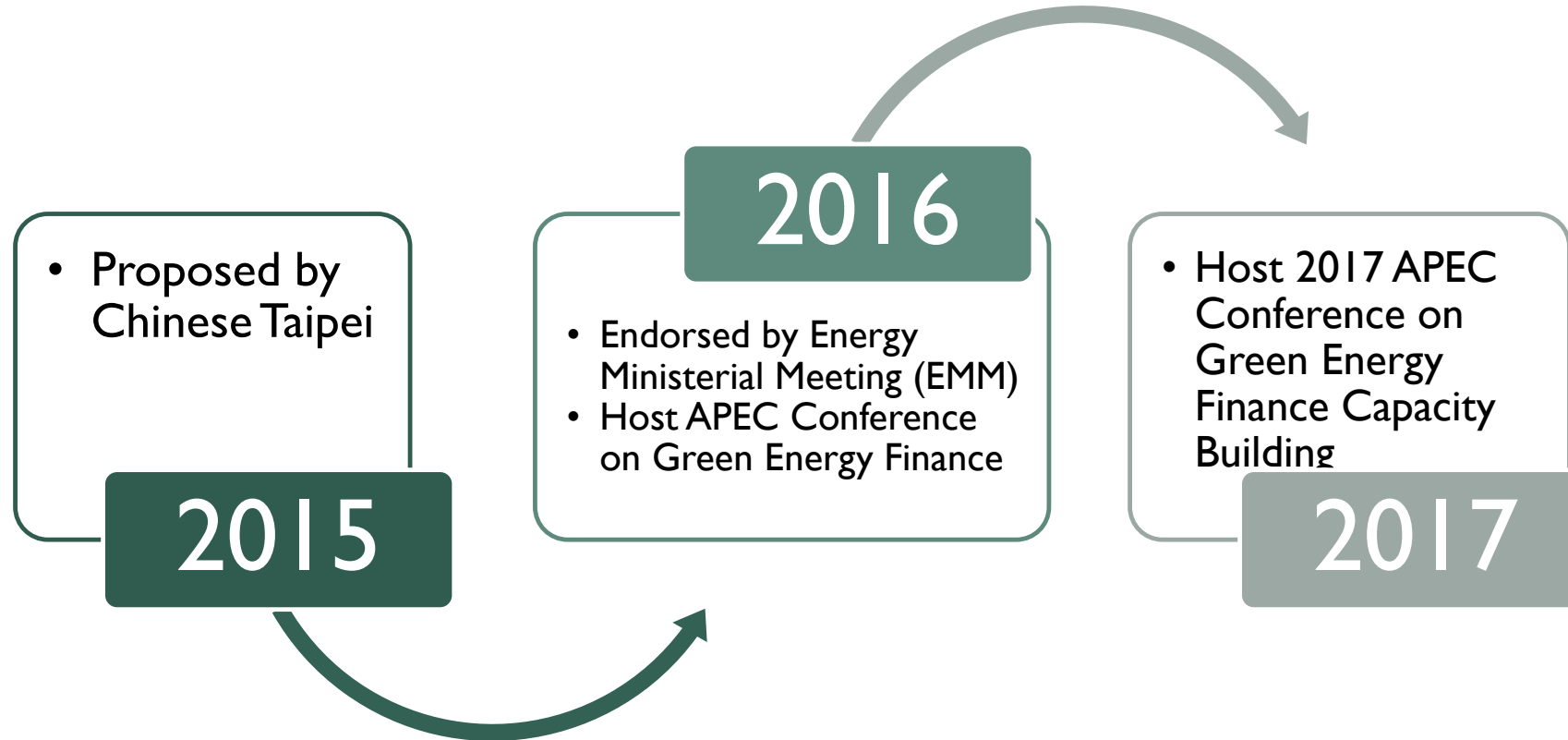
CROSS-FORA COLLABORATION IN FINANCING RENEWABLE ENERGY TECHNOLOGIES

EWG LEAD SHEPHERD

DR. JYUUNG-SHIAUU CHERN



APEC GREEN ENERGY FINANCE INITIATIVE



- Provide a framework and platform for dialogue and cooperation specifically for green energy finance in the APEC region, as well as endeavors to promote the public private partnership in green energy finance.
- To support the financial sustainability of renewable energy and energy efficiency to further ensure regional energy security and success of transformation to low carbon economy in the APEC region.

2016 APEC CONFERENCE ON GREEN ENERGY FINANCE

■ **18-19 August 2016, Chinese Taipei**

■ **Objective :**

1. Ensure the financial sustainability in renewable energy and energy efficiency fields is key to regional energy security and transformation to green economy.
2. Drive the momentum of regional dialogues on green energy finance issues, and serve as groundwork for further development and promotion of financial sustainability in renewable energy within APEC region, as well as to strengthen regional energy security.

■ **Participants from :**

1. **International Organizations:**

ADB, OECD and WEC

2. **APEC Members :**

Australia, Japan, The Philippines, Chinese Taipei, Thailand, and the United States

3. **Research institutes, energy companies and banks**



2016 APEC CONFERENCE ON GREEN ENERGY FINANCE

■ Agenda(1/4)

Day One-8/18	
Time	Agenda
08:30~09:00	Registration
09:00~09:10	Opening Remarks Chih-Kung Lee, Minister, Ministry of Economic Affairs, Chinese Taipei
09:10~09:20	Group Photo
Session I : Global Green Energy Finance Development Trend	
09:20~09:25	Moderator: Tessa Tennant, Non-Executive Director, Green Investment Bank, the UK
09:25~09:50	I. <u>Asian Development Bank's Experiences and Development Trends in Industrial Energy Efficiency and Emission Reduction Financing in the Asia Pacific Region</u> Speaker: Annika Seiler, Finance Specialist (Energy), East Asia Department, Asian Development Bank
09:50~10:15	I. <u>Mobilising Institutional Investors and the Bond Market for Green Finance</u> Speaker: Christopher Kaminker, Project Manager, Environment Directorate, Organisation for Economic Cooperation and Development
10:15~10:35	Coffee Break
10:35~11:00	I. <u>World Energy Trilemma–Time to Get Real–The Myths and Realities of Financing Energy Systems</u> <u>Speaker:</u> Masanori Komori, Director, Regional Agenda, World Energy Council
11:00~11:25	I. <u>Energy in Transformation</u> Speaker: Justin Wu, Head, Asia-Pacific, Bloomberg New Energy Finance
11:25~11:55	Panel Discussion
11:55~13:30	Luncheon

2016 APEC CONFERENCE ON GREEN ENERGY FINANCE

■ Agenda(2/4)

Day One-8/18	
Time	Agenda
Session II : Best Practices and Policies Sharing of Green Energy Finance: Economies' Perspective	
13:30~13:35	Moderator: Annika Seiler, Finance Specialist (Energy), East Asia Department, Asian Development Bank
13:35~14:00	I. Support Mechanisms for Green Energy Finance in Chinese Taipei Speaker: Chia-Wei Wang, Director, Overseas Business Institute, Taiwan Academy of Banking and Finance
14:00~14:40	I. The ACT's 100% Renewable Energy Target and Australia's Changing Generation Mix Speaker: Jon Sibley, Director, Energy and Waste Policy, Environment and Planning Directorate, Australian Capital Territory government, Australia
14:40~15:05	I. Applying Financial Expertise to Design a Green Future Speaker: Yoshiki Hiruma, Director, Enterprise Resilience Rated Loan Program, Development Bank of Japan Inc.
15:05~15:20	Coffee Break
15:20~15:45	I. Best Practice and Policies Sharing of Green Energy Finance in the Philippines Speaker: Paul Lazaro, First Vice President, Financing Infrastructure Environment and Logistics Development, Development Bank of the Philippines
15:45~16:10	I. Best Practice and Policies Sharing of Green Energy Finance in Thailand Speaker: Wisaruth Maethasith, Engineer, Department of Alternative Energy Development and Efficiency, Ministry of Energy, Thailand
16:10~16:35	I. Best Practice and Policy Sharing of Green Energy Finance in the United States Speaker: Kenneth Alston, Special Advisor, Finance and Clean Energy Investment, Department of Energy, <u>the United States</u>
16:35~17:05	Panel Discussion

2016 APEC CONFERENCE ON GREEN ENERGY FINANCE

■ Agenda(3/4)

Day Two- 8/19	
08:30~09:00	Registration
Session III : Best Practices and Policies Sharing of Green Energy Finance: Developers' Perspective	
09:00~09:05	Moderator: Geoffrey Tan, Managing Director, Asia Pacific, Overseas Private Investment Corporation
09:05~09:25	I. Challenges and Opportunities for Developer into Green Energy Finance Speaker: Lucas Lin, President, Swancor Renewable Energy Co., Ltd
09:25~09:45	I. Floating PV Solution Speaker: Shoji Nishizawa, General Manager, Solar Energy International Sales, KYOCERA Corporation
09:45~10:05	I. Challenges and Opportunities for Developer into Green Energy Finance in Thailand Speaker: Supaporn Khiekham, Senior Manager, Marketing and Business Development, Excellent Energy International Co., Ltd
10:05~10:25	I. Challenges and Opportunities for Developer into Green Energy Finance Speaker: Michael Sun, Vice President, Solar Business Group, AU Optronics Corporation
10:25~10:55	Panel Discussion
10:55~11:15	Coffee Break
Session IV : Best Practices and Policies Sharing of Green Energy Finance: Institutions' Perspective	
11:15~11:20	Moderator: Christopher Kaminker, Project Manager, Organisation for Economic Cooperation and Development
11:20~11:40	I. Challenges and Opportunities for Banking in Green Energy Finance Speaker: Tessa Tennant, Non-Executive Director, Green Investment Bank, the UK
11:40~12:00	I. Thailand's Green Financing Model and Landscape Speaker: Ittiporn Intravisit, First Vice President, Kasikornbank Public Company Limited., Bangkok, Thailand
12:00~13:00	Luncheon

2016 APEC CONFERENCE ON GREEN ENERGY FINANCE

■ Agenda(4/4)

Day Two- 8/19	
13:00~13:20	I. Challenges and Opportunities for Banking into Green Energy Finance Speaker: Billy Betts, Head, Project Finance and Advisory Department, Corporate Banking Group, Cathay United Bank
13:20~13:40	I. Challenges and Opportunities for Banking into Green Energy Finance Speaker: Yukitaka Tsukahara, General Manager, Global Project Finance Department, Asia Office, Mizuho Bank
13:40~14:00	I. Financing Renewable Energy Projects in Emerging Asia Pacific Speaker: Geoffrey Tan, Managing Director, Asia Pacific, Overseas Private Investment Corporation
14:00~14:20	I. Best Practice & Policies: Australia Speaker: Simon Every, Head, Government & Stakeholder Relations, Clean Energy Finance Corporation
14:20~14:50	Panel Discussion
14:50~15:05	Coffee Break
Session V : Cooperation Prospect in Green Energy Finance Field in APEC region	
15:05~15:10	Moderator: Kenneth Alston, Special Advisor, Finance and Clean Energy Investment, Office of Secretary, Department of Energy, the United States
15:10~15:30	I. The Path to a Low Carbon APEC: Renewable Energy Doubling and Energy Intensity Reduction Goal Speaker: Jyuung-Shiauu Chern, Section Chief, Planning Division, Bureau of Energy, Ministry of Economic Affairs, Chinese Taipei
15:30~15:50	I. High Renewable and Improved Efficiency Scenarios: Pathways to Achieving the APEC Energy Goals Speaker: Michael Sinocruz, Senior Researcher, Asia Pacific Energy Research Centre (APERC)
15:50~16:10	I. APEC's Doubling Renewable Goal: Investment Implications Speaker: Kirsten Smith, Research Associate, Asia Pacific Energy Research Center (APERC)
16:10~16:50	Roundtable
16:50~17:00	Closing Remarks Speaker: Jyuung-Shiauu Chern, Section Chief, Planning Division, Bureau of Energy, Ministry of Economic Affairs, Chinese Taipei

CONSENSUS HAVE BEEN REACHED AMONG PARTICIPANT EXPERTS (1/2)

1.

Clearly defined, coherent and stable policies, such as targets in line with INDCs and incentive programs, are essential to attract capital investment from both the public and private sectors into green energy projects.

2.

Public-Private Partnerships are integral in bringing forward new green energy projects. Policy makers should seek to establish new information platforms to enable green energy finance, including technology roadmaps, data on risks or returns, market forecasts and analytical tools where risk can be properly assessed.

CONSENSUS HAVE BEEN REACHED AMONG PARTICIPANT EXPERTS (2/2)

3.

Improved financial evaluation resources can be accelerators for green energy projects. Risk analysis and management tools should be reformulated to support financial policies and financing instruments that support the development of green energy, and the preference of different types of investors including institutional investors, e.g., pension fund, insurance and sovereign wealth fund.

4.

The energy sector should evaluate cost and pricing models that take environmental factors into account in response to the fast changing business model, and introduce clearly bankable projects and pipelines to different investment preference and options in the market.

5.

Under the framework of APEC, member economies are encouraged to deepen regional energy cooperation for green energy finance between the public and private sectors.

2017 APEC CONFERENCE ON GREEN ENERGY FINANCE CAPACITY BUILDING

- **28-29 September 2017, Chinese Taipei**
- **Objective :**
 1. To build capacity in the field of green energy finance by inviting in-depth discussion and knowledge sharing on policy measures, regulation frameworks, and financial instruments.
 2. To create a platform where stakeholders from public and private sectors can exchange expertise on technology roadmaps, data on risks or returns, market forecasts and analytical tools where risk can be properly assessed.
- **Participants from :**
 1. **International Organizations:**
ADB, ERIA, IEA, IPEEC, and OECD
 2. **APEC Members :**
Chile, Japan, Republic of Korea, Malaysia, Peru, The Philippines, Chinese Taipei, Thailand, The United States, and Singapore
 3. **Research institutes, energy companies and banks**



2017 APEC CONFERENCE ON GREEN ENERGY FINANCE CAPACITY BUILDING

■ Agenda(1/4)

Day One, 28 September	
Time	Agenda
08:30~09:00	Registration
09:00~09:10	Opening Remarks Speaker: Ms. Yi-Ling Chen, Chief Secretary, Ministry of Economic Affairs
09:10~09:25	Group Photos
Keynote Speech: Global Climate Change Actions and Overcoming Financing Barriers	
09:25~09:45	Speaker: Mr. Hideki Takada, Senior Policy Analyst, Green Finance and Investment, Environment Directorate, Organisation for Economic Co-operation and Development
Keynote Speech: World Energy Investment 2017	
09:45~10:05	Speaker: Mr. Michael Waldron, Energy Investment Analyst, Economics and Investment Office, International Energy Agency
Session I : Global Trends in Green Energy Market Development and Financing	
10:05~10:10	Moderator: Mr. Hideki Takada, Senior Policy Analyst, Green Finance and Investment, Environment Directorate, Organisation for Economic Co-operation and Development
10:10~10:30	I-1.G20 Energy Efficiency Investment Toolkit Speaker: Ms. Ailin Huang, Programme Officer, International Partnership for Energy Efficiency Cooperation
10:30~10:50	Coffee Break
10:50~11:10	I-2.The Clean Energy Transition Speaker: Mr. Justin Wu, Head, Asia-Pacific, Bloomberg New Energy Finance
11:10~11:30	I-3.Energy Trends in APEC Speaker: Ms. Kirsten Smith, Researcher, Asia Pacific Energy Research Centre
11:30~12:00	Panel Discussion
12:00~13:00	Lunch

2017 APEC CONFERENCE ON GREEN ENERGY FINANCE CAPACITY BUILDING

■ Agenda(2/)

Day One, 28 September	
Time	Agenda
Session II: Facilitating Green Energy Finance	
13:00~13:05	Moderator: Mr. Michael Waldron, Energy Investment Analyst, Economics and Investment Office, International Energy Agency
13:05~13:25	II-1. Scaling up Investments in Energy Efficiency Speaker: Ms. Jennifer Romero-Torres, Senior Finance Specialist (Energy), East Asia Energy Division, East Asia Regional Department, Asian Development Bank
13:25~13:45	II-2. Facilitating Green Energy Finance – Risk Management and Financial Modelling Speaker: Mr. Peter Knott, Managing Director, Green Investment Group, Macquarie Capital
13:45~14:15	Panel Discussion
14:15~14:35	Coffee Break
Session III: Best Practices in Energy Efficiency Financing	
14:35~14:40	Moderator: Ms. Ailin Huang, Programme Officer, International Partnership for Energy Efficiency Cooperation
14:40~15:00	III-1. Korea Soft Loan (Energy Use Rationalization Funds) Speaker: Ms. Seulgi Cho, Assistant Manager, Finance Support Division, Korea Energy Agency, Korea
15:00~15:20	III-2. ESCO Program in Korea Speaker: Mr. Dongwook Cho, ESCO Team Manager, Finance Support Division, Korea Energy Agency, Korea
15:20~15:40	III-3. US Federal and State-Based Energy Policy and Technology in Regards to Energy Efficiency Speaker: Dr. Terry Surles, Senior Advisor, California Institute of Energy and Environment, University of California/Berkeley, The United States
15:40~16:10	Panel Discussion Panelists: ● Presenting APEC Economies Delegates

2017 APEC CONFERENCE ON GREEN ENERGY FINANCE CAPACITY BUILDING

■ Agenda(3/4)

Day Two, 29 September	
Time	Agenda
09:00~09:30	Registration
Keynote Speech: Green Energy Target and Cooperation in ASEAN	
09:30~09:50	Speakers: Dr.Venkatachalam Anbumozhi, Senior Economist, Energy Unit, Economic Research Institute for ASEAN and East Asia
Session IV: Best Practices in Renewable Energy Financing	
09:50~09:55	Moderator: Dr.Venkatachalam Anbumozhi, Senior Economist, Energy Unit, Economic Research Institute for ASEAN and East Asia
09:55~10:15	IV-1.Best Practices in Renewable Energy Financing:The Chilean Case Speaker: Mr. Diego Valenzuela, Head of Unit, Energy Infrastructure Division, Ministry of Energy, Chile
10:15~10:35	IV-2.Listed Infrastructure Fund Market Speaker: Mr.Takumi Hayase,Vice President, New Listing Promotion Dept.,Tokyo Stock Exchange, Inc., Japan
10:35~10:55	IV-3.Best Practices in Renewable Energy Financing Speaker: Dato' Leong Kin Mun, President, Malaysia Biomass Industries Confederation, Malaysia
10:55~11:15	Coffee Break
11:15~11:35	IV-4.Best Practices in Renewable Energy Financing—A Singaporean Perspective Speaker: Ms. Monika Bieri, Research Associate, Solar Energy Research Institute of Singapore, National University of Singapore, Singapore
11:35~11:55	IV-5.Renewable Energy Target and Promotion Program Speaker: Mr. Peng, Sheng-Pen, Associate Research Fellow, Taiwan Academy of Banking and Finance, Chinese Taipei
11:55~13:00	Lunch

2017 APEC CONFERENCE ON GREEN ENERGY FINANCE CAPACITY BUILDING

■ Agenda(4/4)

Day Two, 29 September	
Time	Agenda
13:00~13:20	IV-6.Best Practices in Renewable Energy Financing in Thailand Speaker: Ms. Sutthasini Glawgitigul, Senior Professional Scientist, Department of Alternative Energy and Efficiency, Ministry of Energy, Thailand
13:20~13:40	IV-7.US Federal and State-Based Energy Policy and Technology in Regards to Renewable Energy Speaker: Dr.Terry Surles, Senior Advisor, California Institute of Energy and Environment, University of California/Berkeley, The United States
13:40~14:40	Panel Discussion Panelists: ● Presenting APEC Economies Delegates
14:40~15:00	Coffee Break
Session V:Accelerating Green Energy Finance through Regional Cooperation in APEC	
15:00~15:05	Moderator: Dr. Jyuung-Shiauu Chern, Lead Shepherd, APEC Energy Working Group
15:05~16:05	Round Table Panelists: ● Dr. Venkatachalam Anbumozhi, Senior Economist, Energy Unit, Economic Research Institute for ASEAN and East Asia ● Mr. Michael Waldron, Energy Investment Analyst, Economics and Investment Office, International Energy Agency ● Mr. Peter Knott, Managing Director, Green Investment Group, Macquarie Capital ● Mr. Hideki Takada, Senior Policy Analyst, Green Finance and Investment, Environment Directorate, Organisation for Economic Co-operation and Development ● Mr. Diego Valenzuela, Unit Chief, Energy Infrastructure Division, Ministry of Energy, Chile ● Dr.Terry Surles, Senior Advisor, California Institute of Energy and Environment, University of California/Berkeley ,The United States
16:05~16:10	Closing Remarks Speaker: Mr. Jin-Sheng Su, Chief Secretary, Bureau of Energy, Ministry of Economic Affairs

POLICY RECOMMENDATIONS FOR PROMOTING GREEN ENERGY FINANCE



I. INSTITUTIONALIZED REFORM

- 1) Form sound, transparent and flexible investment-grade policy framework**
 - longer-term energy policy roadmap, regulatory framework and implementation measures, etc
 - facilitate operational efficiency, promote green energy policy integration, and decrease the financial cost and risk from policy uncertainty
- 2) Provide diverse financial tools and streamline technical and financial services**
 - mobilize private capital by providing diverse financial tools
 - support green energy finance industry by streamlining technical and financial services
- 3) Accelerate the deployment of green energy in infrastructure, especially in transportation, buildings, smart grids, etc**
 - value the importance of holistic and integrated planning for low carbon development at communities and municipal levels.
- 4) Launch micro-finance projects for green energy to address energy poverty**
 - improve energy access and alleviate energy poverty.

2. SYSTEM IMPROVEMENT

- 1) **Develop rating system, credit rating system, dispute settlement and risk management tools among financial institutions**
 - improve market environment for green energy finance
- 2) **Establish green energy finance project sharing mechanism**
 - promote market transparency and data availability
- 3) **Formulate SOP for mortgage and loan authorization, risk management and capital management**
 - to take into account energy efficiency and other green energy aspects in a systematic manner
- 4) **Promote green energy demonstration projects and facilitate the design of localized green energy finance framework**
 - help explore innovative green energy business model, disseminate new financing tools and models
- 5) **Encourage the adoption of Environmental, Social and Corporate Governance(ESG) and Social Responsible Investment(SRI)**
- 6) **Promote cooperation among large enterprises and SMEs**
 - large enterprises' can team up with the SMEs in their supply chains in terms of energy target setting and energy audit. As such they can serve as an effective platform to cluster SMEs together in a peer-to-peer business network.

3. HUMAN RESOURCE DEVELOPMENT

1) Strengthen capacity building for policy makers

→ develop policy makers' capacity in understanding long-term green energy development trends and timely adjustment of policy direction if necessary

2) Enhance the capabilities of policy makers in financial analysis

→ design green energy policies that stimulate green energy investment

3) Develop financial institutions' capacity in understanding green energy and development of specialized products and services

→ scale up financing of green energy

4) Provide targeted experience sharing and training sessions to reduce information asymmetry

→ reduce information asymmetry among stakeholders and enhance their capacity in participating in green energy projects by providing targeted experience sharing and training sessions.

4. INTERNATIONAL COOPERATION

1) Pursue cross fora cooperation with other international organizations to enhance synergy on green energy finance issues among all policy bodies of APEC

→ to jointly achieve APEC's ambitious energy intensity reduction and renewable energy doubling goal.

2) Expedite best practice sharing to facilitate green energy finance

→ shorten the learning curves of facilitating green energy finance for each economy

Thank you for your kind attention.