



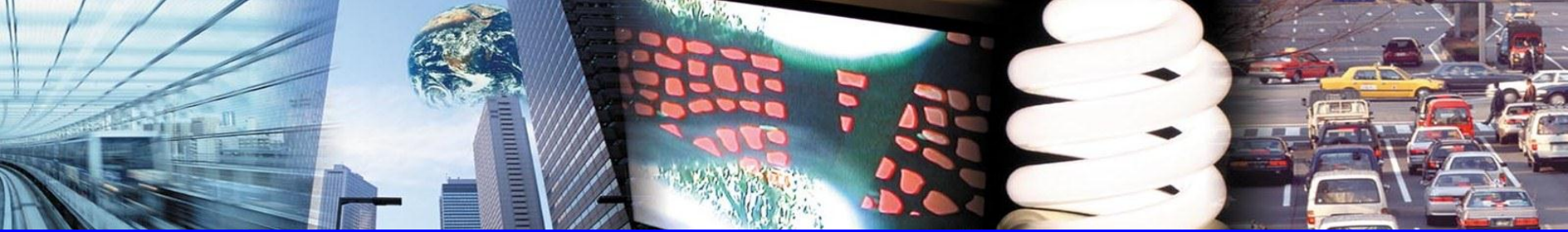
APEC New and Renewable Energy Technologies
Expert Group (EGNRET) 41 Meeting
16-17 October 2013, Beijing, China

***The Progress of Peer Review on Low-Carbon Energy
Policies (PRLCE) in APEC***

Yeong-Chuan Lin
Asia Pacific Energy Research Centre (APEREC)



Asia-Pacific
Economic Cooperation



Contents

- ➔ • **Introduction**
- Mechanism for Peer Review of Low Carbon Energy Policies (PRLCE)
- Progress of PRLCE Phase 1
- Progress of PRLCE Phase 2
- Option for future PRLCE
- Conclusion



APERC's Cooperative Activities

- APERC's Cooperative Activities can be defined as “APERC's activities to directly cooperate with the APEC member economies in solving their energy problems or improving their energy situation”.
- The major methods of APERC's Cooperative Activities are **peer reviews** and **workshops**.
 - **Peer reviews**: Experts, mainly from the APEC region, visit a host economy to review its energy situation and policies, and make recommendations for the host economy.
 - **Workshops**: Experts from both within and outside of the APEC region work with host economy to share information necessary for policy planning.



Declaration of PRLCE

APEC Energy Ministers' 2010 Fukui Declaration:

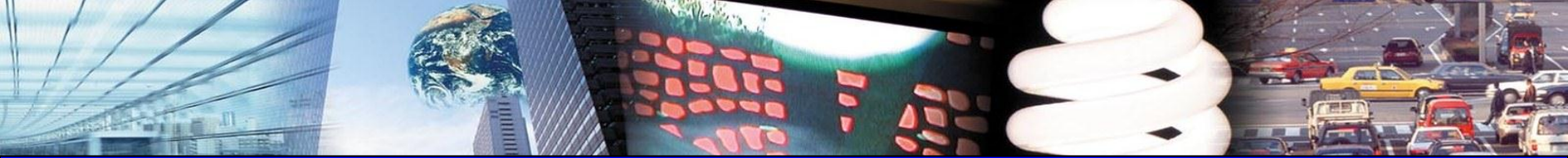
“We commend the **Peer Review on Energy Efficiency (PREE)** which has been successfully carried out for four APEC economies and urge additional economies to participate”.

“We instruct the EWG to explore *mechanisms* to encourage economies to set **individual goals** and **action plans** for introducing *low-emission power sources* - renewable, nuclear and fossil fuels with carbon capture and storage (CCS) - to make our energy supply cleaner. We will create *low-carbon communities* in the region”.



Contents

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Objectives of PRLCE

- Assist volunteer APEC economies to promote **low-emission power sources** by providing recommendations from APEC peer review experts.
- Share experiences and knowledge on best practices for efficient and effective policies to promote **low emission supplies** (such as renewable energies) in developing APEC economies, and to determine how to adapt policies and measures which have been successful elsewhere to the unique conditions of each economy;
- Encourage developing APEC economies to **set individual goals** on energy supply from low emission sources (such as renewable energies), and to formulate action plans to achieve the goals



Process of PRLCE

Stage	Activity	Responsibility
1	EWG endorses the host economy volunteering for Peer Review	EWG
2	Economy prepares for and submits to APERC pre-briefing information within one month	Economy
3	APERC PRLCE Manager and economy representative plan Peer Review using Peer Review guidelines	Economy and APERC
4	Peer Review team proposed and contacted	Economy and APERC
5	Peer Review team confirmed	Economy and APERC
6	Economy plans visit in discussion with APERC	Economy and APERC
7	Economy and APERC confirm review team and visit program. APERC with Review team may submit specific questions / data requirement to host economies. APERC request for briefing information	Economy and APERC Review Team
8	Economy provides the answers for the specific questions and information to review team	Economy
9	Review visit to economy	Review Team, Economy and APERC
10	Draft Review Report finalized	Review Team and Economy
11	Final draft report signed off by economy	Economy
12	Economy provides Draft Peer Review Report to EWG	Economy
13	Economy and EWG Secretariat tables the final draft review report at EWG for its discussion and approval	Economy and EWG Secretariat



Main Roles and Responsibilities of Stakeholders

Host Economy

- Plan review process
- Prepare Documents for Review
- Arrange logistic needs
- Assess the preliminary and the draft final report

APEC

- Coordinate the review team formation with the host economy
- Coordinate the draft final report preparation with Host Economy
- Prepare the guidelines for PRLCE

Review Team

- Conduct the review
- Present findings and recommendations in the preliminary report
- Prepare the draft final report

EWG

- Discuss and Endorse the draft final report
- Report to APEC Senior Officials

cf. "Guideline on APEC Peer Review on Low-Carbon Energy Supply (PRLCE)"



Contents

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Summary of PRLCE Activities

PRLCE Phase 1

PRLCE Phase 2

**PRLCE-1
Thailand**

**PRLCE -2
Philippines**

**PRLCE -3
Indonesia**

2012

2013



PRLCE-1 in Thailand (Outline)

- **Thailand** hosted the first PRLCE-1 on **21~25 May 2012** with the focus on **Alternative Energy Development Plan (2008-2022)** (AEDP) for Solar, Wind , Biomass, Biogas and other renewable energy.
- The review team consisted of **7 experts** (from China, Japan, Malaysia, Chinese Taipei, USA, Viet Nam, IRENA) and 3 APERC Researchers.
- The review team experts have provided **45 policy recommendations**.



PRLCE-1 in Thailand (Framework of AEDP)

Department of Alternative
Energy Development and Efficiency
MINISTRY OF ENERGY

New Energy
Type (Wave,
Geothermal)
3MW

Alternative Energy
Development Plan
(2008 – 2022)
(AEDP)

Biofuel
**Oil Substitution
44%**

Alternative Energy Consumption : 25% by 2021

Solar
Wind
3,200MW

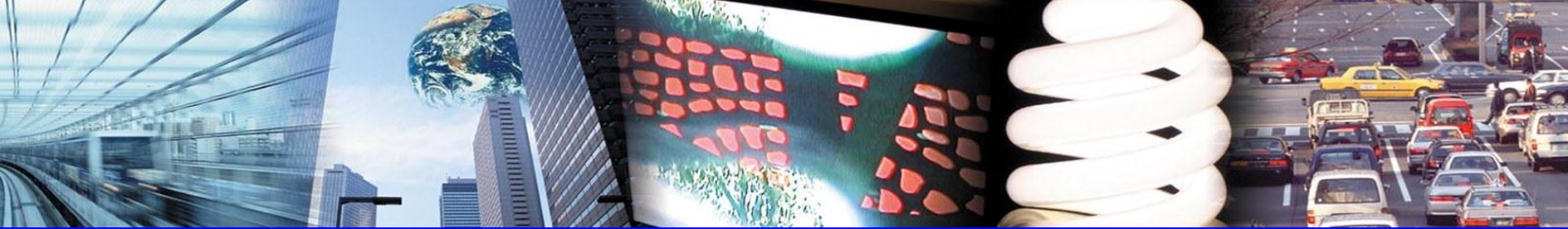
Hydro
1,608MW

Bio Energy
4,390MW



PRLCE-2 in the Philippines (Outline)

- **The Philippines** hosted the second PRLCE-2 on **19~23 November 2012** with the focus on **National Renewable Energy Program (2011-2030)** (including the **Feed-in Tariff** system for renewable energy).
- The review team consisted of **6 experts** (from China, Japan, Malaysia, New Zealand, Thailand, IRENA) and **3 APERC** Researchers. The review team experts have drafted policy recommendations.
- The first draft of Review Report for the 2nd PRLCE in the Philippines was compiled and then reviewed by the Philippines Government.
- The final draft will be tabled for the endorsement of EWG46 at Da Nang, Viet Nam in November.



Areas covered in the Review

P

Institutional Context

Renewable Energy Goals, Targets and Strategy

R

Regulation and Infrastructure

L

Bio-Fuels and Biomass Energy

C

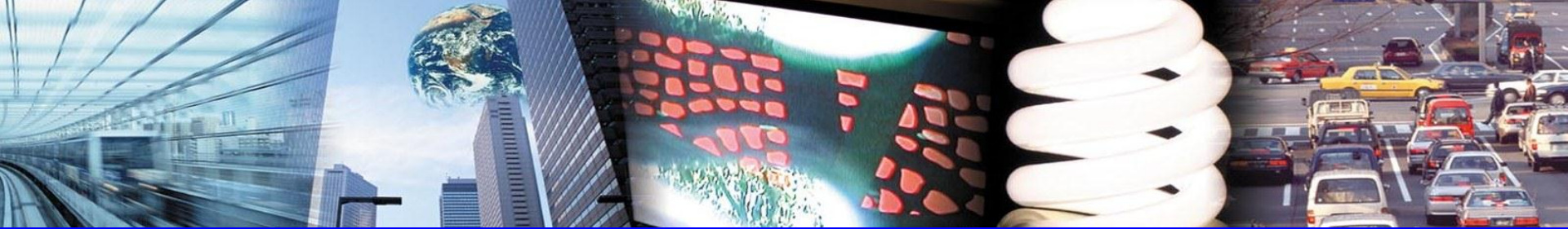
Geothermal, Solar and Wind

E

Hydropower Energy

Power Supply System (Smart Grid, FiT, Private Participation

Green House Gas Management



Areas covered in the Review

Institutional Context

Creation of REMB

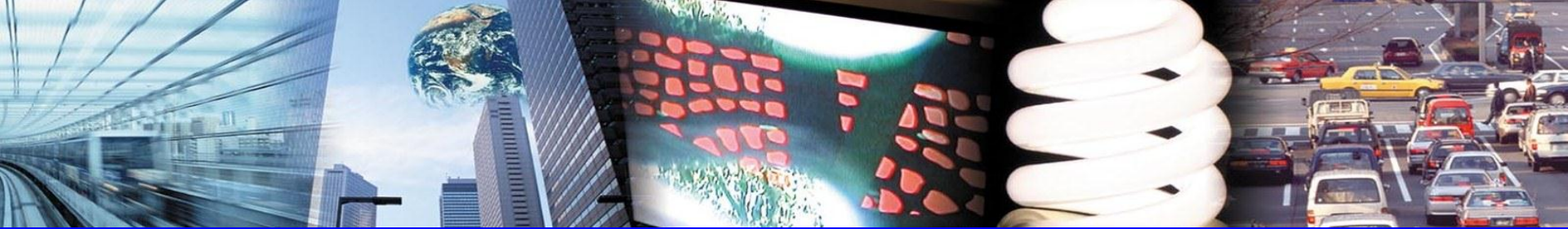
Implements policies, plans and programs related to RE;

Develop and maintain a centralized, comprehensive and unified data and information on RE;

Creation of NREB

Evaluate and recommend to the DOE the mandated RPS and minimum RE generation capacities in off-grid areas

*Implementation of NREP; FiT;
Oversee RE Trust Fund*



Areas covered in the Review

Renewable Energy Goals, Targets and Strategy

NREP

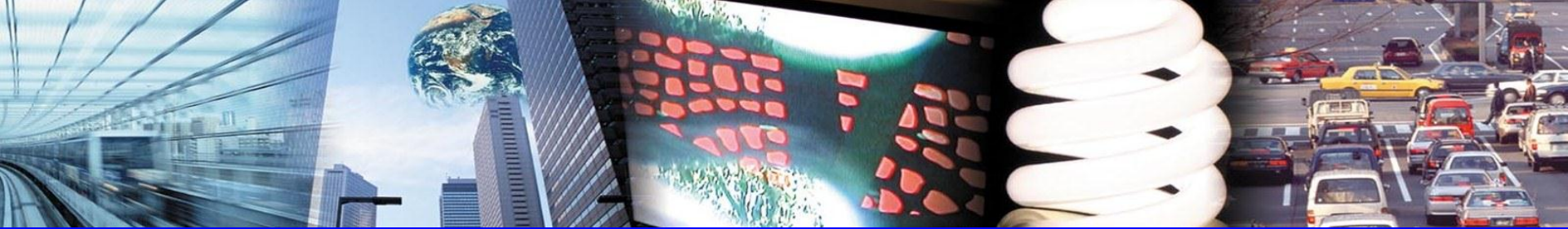
NREP (Sectoral Targets and Programs)

**Plans
And
Programs**

Philippine Energy Plan (PEP), Missionary Electrification Development Plan (MEDP), National Energy Efficiency and Conservation (NEECP), etc

**Related
Acts
and Laws**

Renewable Act of 2008,
Biofuels Act of 2006



Areas covered in the Review

Regulation and Infrastructure



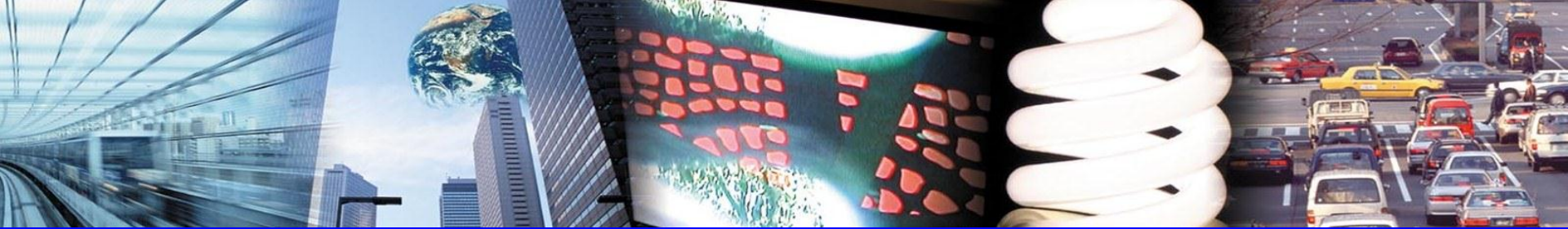
NREP, Grid plans

Related
Agencies

NREB, Energy Regulatory
Commission (ERC)

Finance

Loan Packages, Financing
Institutions



Areas covered in the Review

**Bio-Fuels and
Biomass
energy**

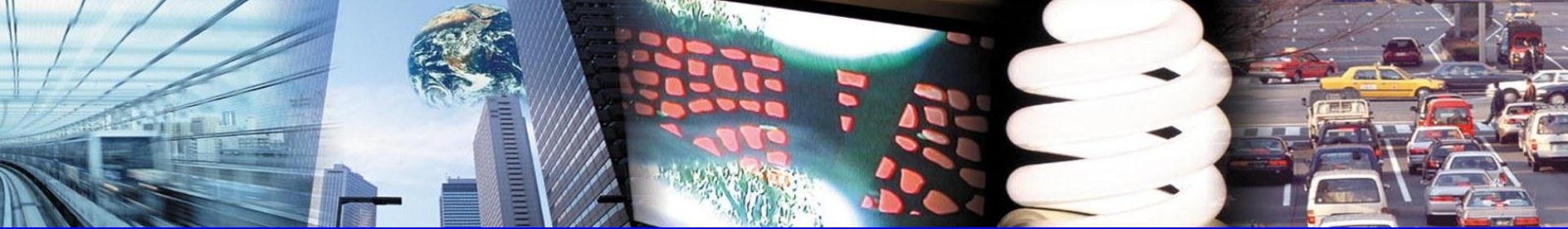
**Geothermal,
Solar and
Wind**

**Hydropower
Energy**

National Renewable Energy Program (NREP)

Sectoral Targets

1. Increase geothermal capacity by 75.0 percent;
2. Increase hydropower capacity by 160 percent;
3. Deliver additional 277MW biomass power capacities;
4. Attain wind power grid parity with the commissioning of 2,345 MW additional capacities;
5. Mainstream an additional 284 MW solar power capacities and pursue the achievement of the 1,528 MW aspirational target;
6. Develop the first ocean energy facility for the country.



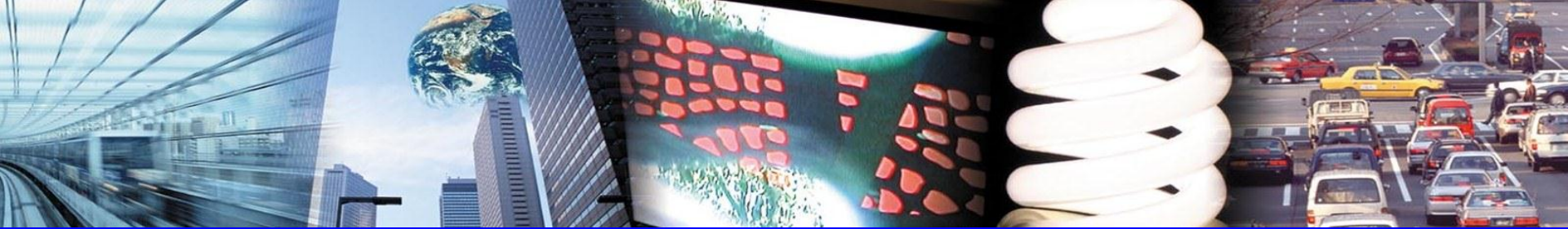
Areas covered in the Review

Power Supply System

Feed-in-Tariff

RE Source/Technology	Rates
Solar	₱ 9.68 (USD 0.242)
Wind	₱ 8.53 (USD 0.213)
Biomass	₱ 6.63 (USD 0.166)
Run-of-the-river Hydropower	₱ 5.90 (USD 0.147)

FiT for ocean thermal projects is for further study and data gathering, while the hydropower reservoir and geothermal supplies were not subjected to the FIT due to market competitiveness.



Areas covered in the Review

**Green House
Gas
Management**

CDM

**Clean Development
Mechanism**

RPS

**Renewable Portfolio
Standards**



**Energy Reform
Agenda (ERA)**



The Review Team

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China



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Japan



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New Zealand



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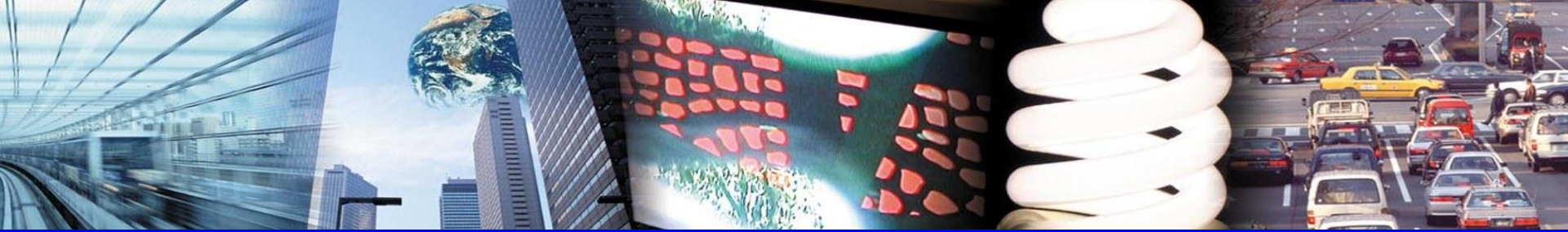
Thailand



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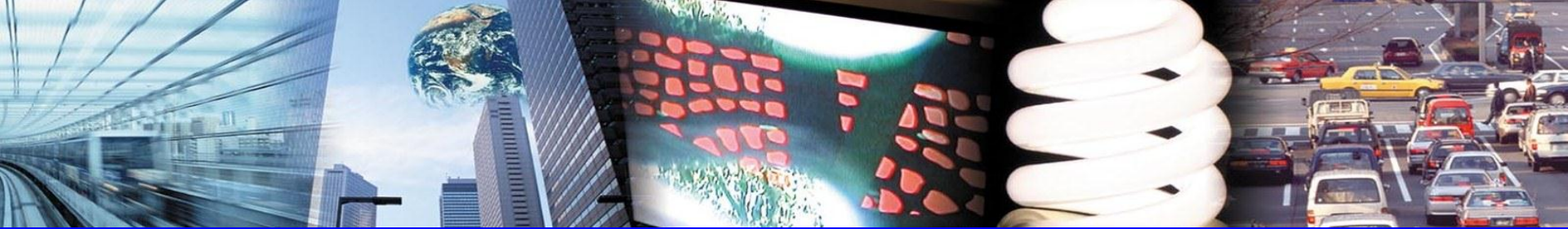
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PRLCE Phase 2

- **Indonesia** hosted the first PRLCE-3 on **13~17 May 2013** with the focus on **Renewable Energy**.
- The review team consisted of **5 experts** (from China, Japan, Malaysia, Thailand, USA) and 3 APERC Researchers.
- The draft of Review Report for the PRLCE-3 in Indonesia was compiled and is now under review by the Indonesian Government.
- The draft Review Report will be tabled for the endorsement of EWG46 at Da Nang, Viet Nam in November .



Areas covered in the Review

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Institutional Context

Renewable Energy Goals, Targets and Strategy

Regulation and Infrastructure

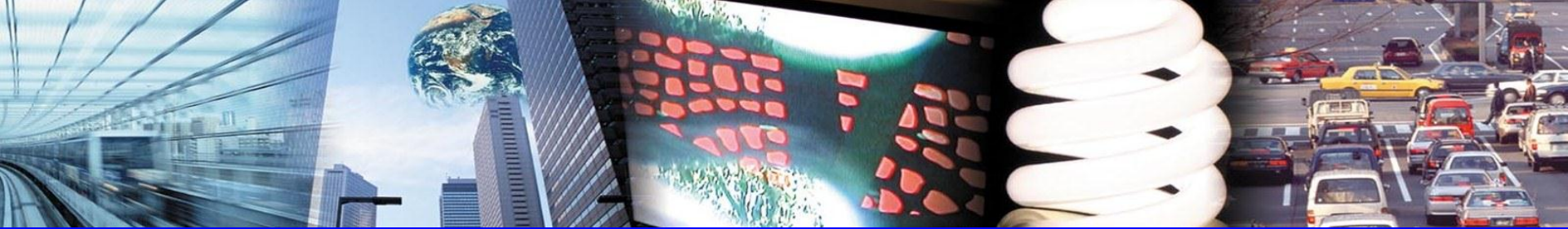
Biofuels and Biomass Energy

Geothermal, Solar and Wind Energy

Hydro Power Energy

Power Supply System - FIT, Smart Grid & Private Participation

Green House Gas Management



Areas covered in the Review

**Institutional
Context**

The National Energy Council (DEN)

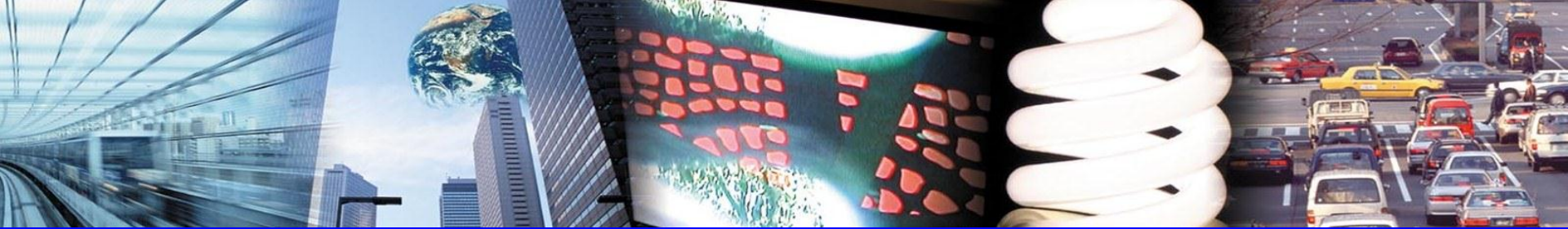
- Review the role of DEN related to RE
- Review the decision made by DEN related to RE

The Directorate General of New Renewable Energy & Energy Conservation (DGNREEC)

- Review the role of DGNREEC related to RE
- Review the procedure for RE development

Stakeholders : review their participation related to RE development

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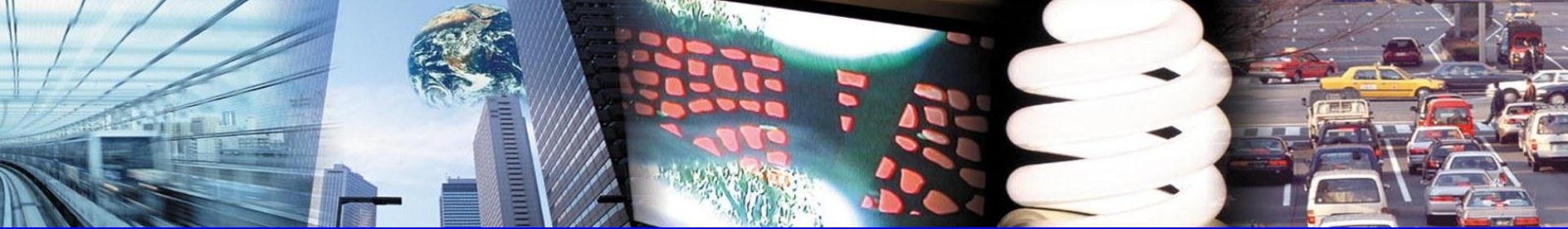
Areas covered in the Review

**Renewable
Energy
Goals,
Targets &
Strategy**

**The 2006 National Energy Policy and the
Draft National Energy Policy**

- Review the targets related to RE
- Review the plans related to RE
- Review the programs related to RE

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Areas covered in the Review

Regulation and Infrastructure

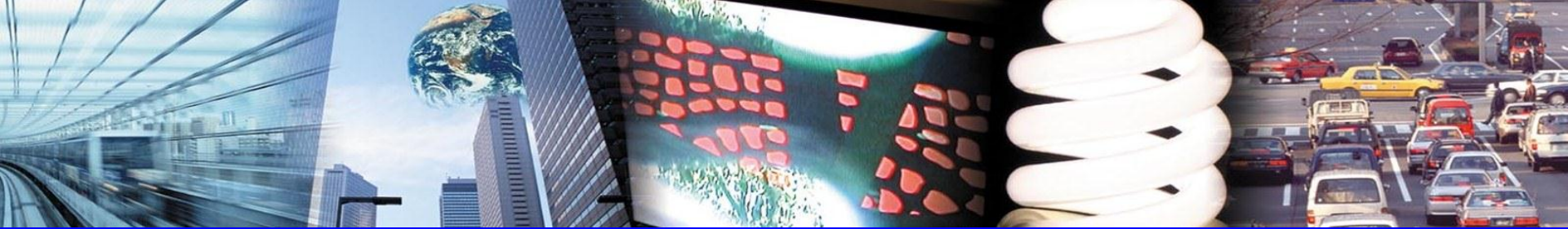
Regulation

- Review existing laws & regulations and planned

Infrastructure

- Review electricity infrastructure
- Review infrastructure funding

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Areas covered in the Review

**Bio-Fuels &
Biomass
Energy**

- Review potential resources and installed capacity

**Geothermal,
Solar and
Wind**

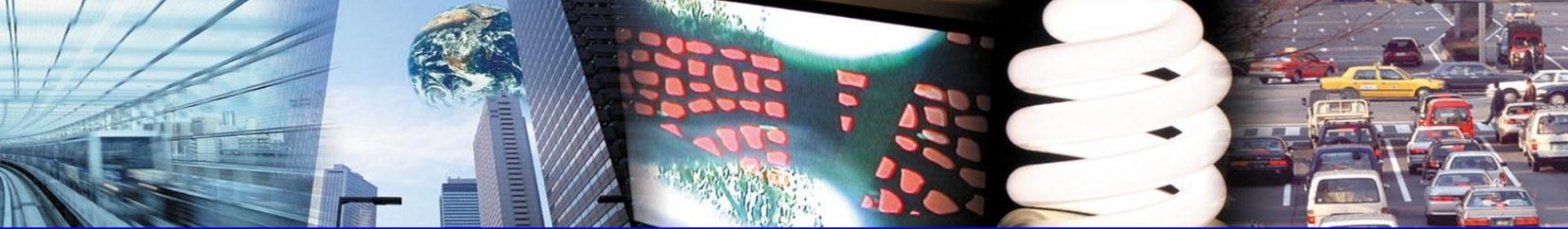
- Review the existing regulations and planned

- Review the plans and program

**Hydropower
Energy**

- Review the barriers

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Areas covered in the Review

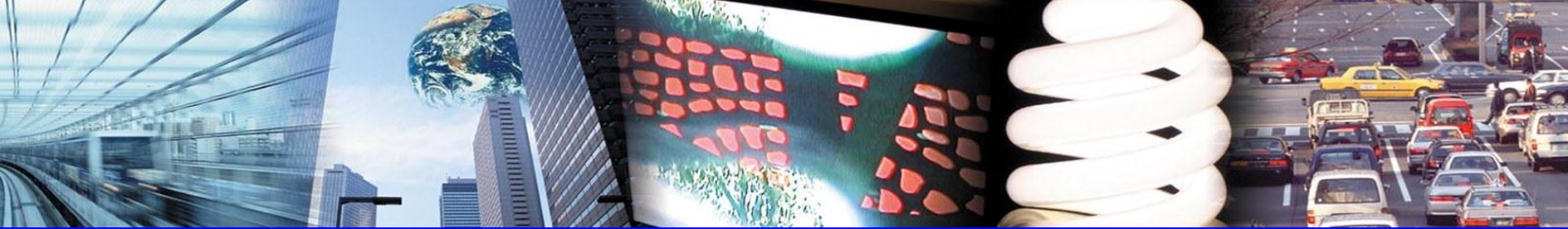
Power Supply System

- Review implementation FIT related to RE

Review the plans and program of smart grid

- Review the private participation in RE development and the barriers for them to participate it

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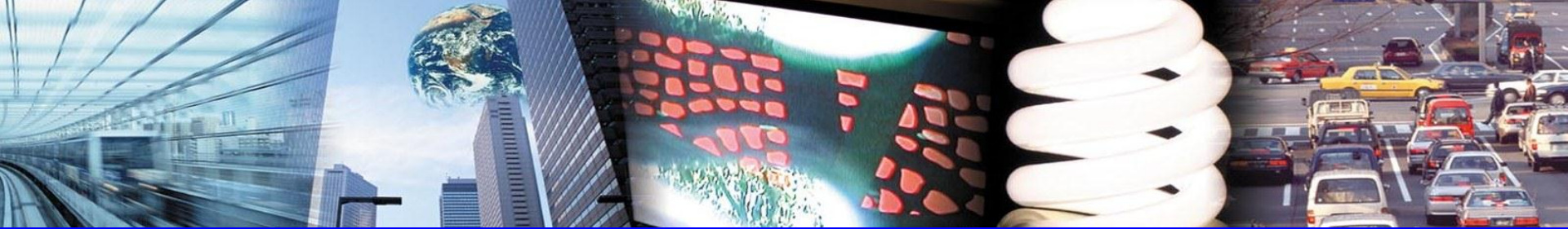


Areas covered in the Review

**Green House
Gas
Management**

- Review existing regulation and planned
- Review the targets, plans and program

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The Review Team

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PRLCE Phase 2

- **Malaysia** has volunteered to host the PRLCE-4 on **9~13 December 2013**.
- The focus areas are **Renewable Energy**, **regulatory frameworks** and **Feed-in Tariff system**.



Contents

- Introduction
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- Progress of PRLCE Phase 2
- ➔ • **Option for future PRLCE**
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Possible Option for future PRLCE

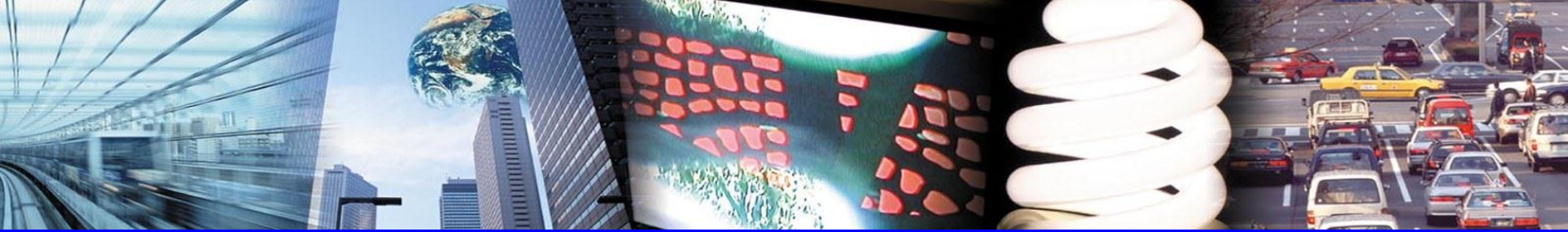
- Compared with PREE (for all economies), given the resource constraints of APERC and recognizing the smaller number of potential host economies (only developing economies), it may be necessary to reduce the number of PRLCE peer reviews per year.

Example:

Two PRLCEs in 2012 and 2013



One PRLCE after 2014



Contents

- Introduction
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- Progress of PRLCE Phase 2
- Future option of PRLCE
- ➔ • **Conclusion**



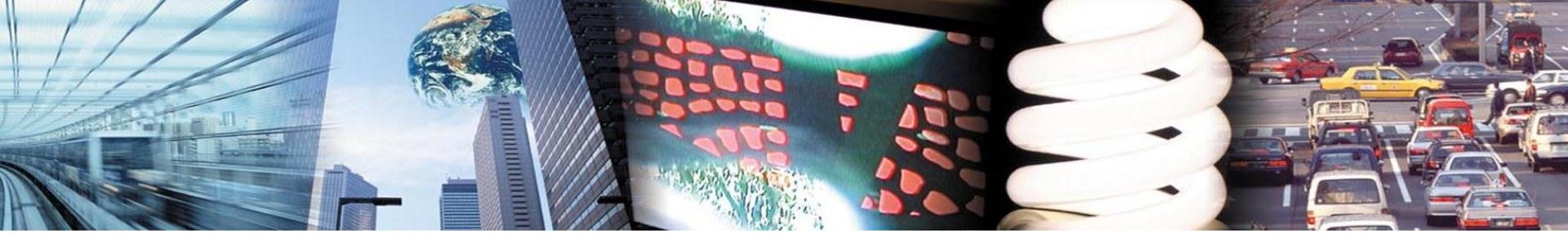
Conclusion (1/2)

- Increase in energy consumption and fast economic growth in the APEC region needs a more aggressive approach and efforts for the development and application of low carbon energy.
- Host economy and other APEC economies can share experiences and knowledge on best practices for efficient and effective policies to promote low carbon power supplies (such as renewable energy), including how to adapt policies and measures/technologies which have been successful elsewhere to the unique conditions of each economy.



Conclusion (2/2)

- Valuable recommendations on how to improve low carbon energy policies can be gained for host economy.
- APERC will act as the coordinator to promote the sustainable development of the APEC Region in cooperation with each economy in the region.



Thank you for your kind attention

<http://aperc.ieej.or.jp/>