



Expert Group of New and Renewable Energy Technology (EGNRET)  
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# ***Peer Review on Low-Carbon Energy Supply (PRLCE)***

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Asia-Pacific  
Economic Cooperation



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- The 1<sup>st</sup> PRLCE in Thailand
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## ***Peer Review on Energy Efficiency (PREE)***

### **APEC Energy Ministers' 2007 Darwin Declaration:**

“We directed the APEC Energy Working Group (EWG) to develop a ***Voluntary Energy Peer Review Mechanism***, with an initial focus on progress toward attaining **energy efficiency goals**”

### **APEC Leaders' 2007 Sydney Declaration:**

“We agreed on the two specific initiatives: 1) **to facilitate and review progress through *voluntary APEC Energy Peer Review Mechanism***, with a report back to APEC Leaders; and 2) to work towards achieving an APEC-wide goal of a reduction in energy intensity of at least 25 percent by 2030 (with 2005 as the base year)”



## ***Peer Review for Low-Carbon Energy Supply (PRLCE)***

### **APEC Energy Ministers' 2010 Fukui Declaration:**

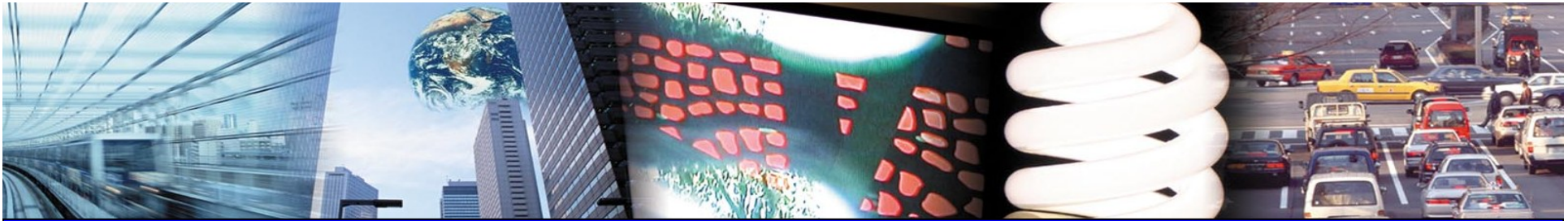
“We commend the **Peer Review on Energy Efficiency (PREE)** which has been successfully carried out for four APEC economies and urge additional economies to participate”.

“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”.





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## *Objective of PRLCE*

- To assist volunteer APEC economy to promote **low-emission power sources** such as renewable energy, nuclear and fossil fuel with CCS by providing **recommendations** from **APEC peer review experts**.
- APERC is planning to further carry out analyses **on best practices** for efficient and effective policies to promote low carbon power supplies in APEC economies, and how such best practice policies can be applied, considering different conditions in different economies.



## 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

## APERC

- 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

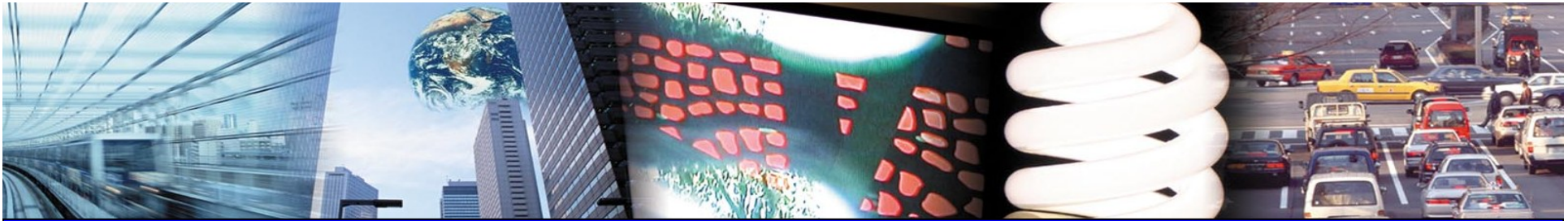
- Discuss and Endorse the draft final report
- Report to APEC Senior Officials

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



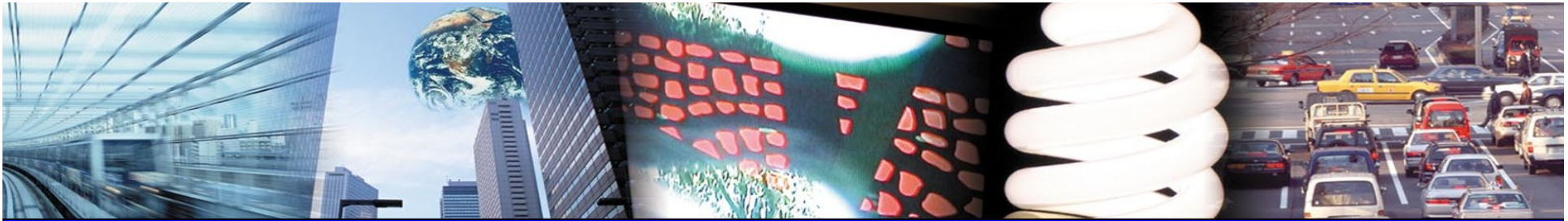


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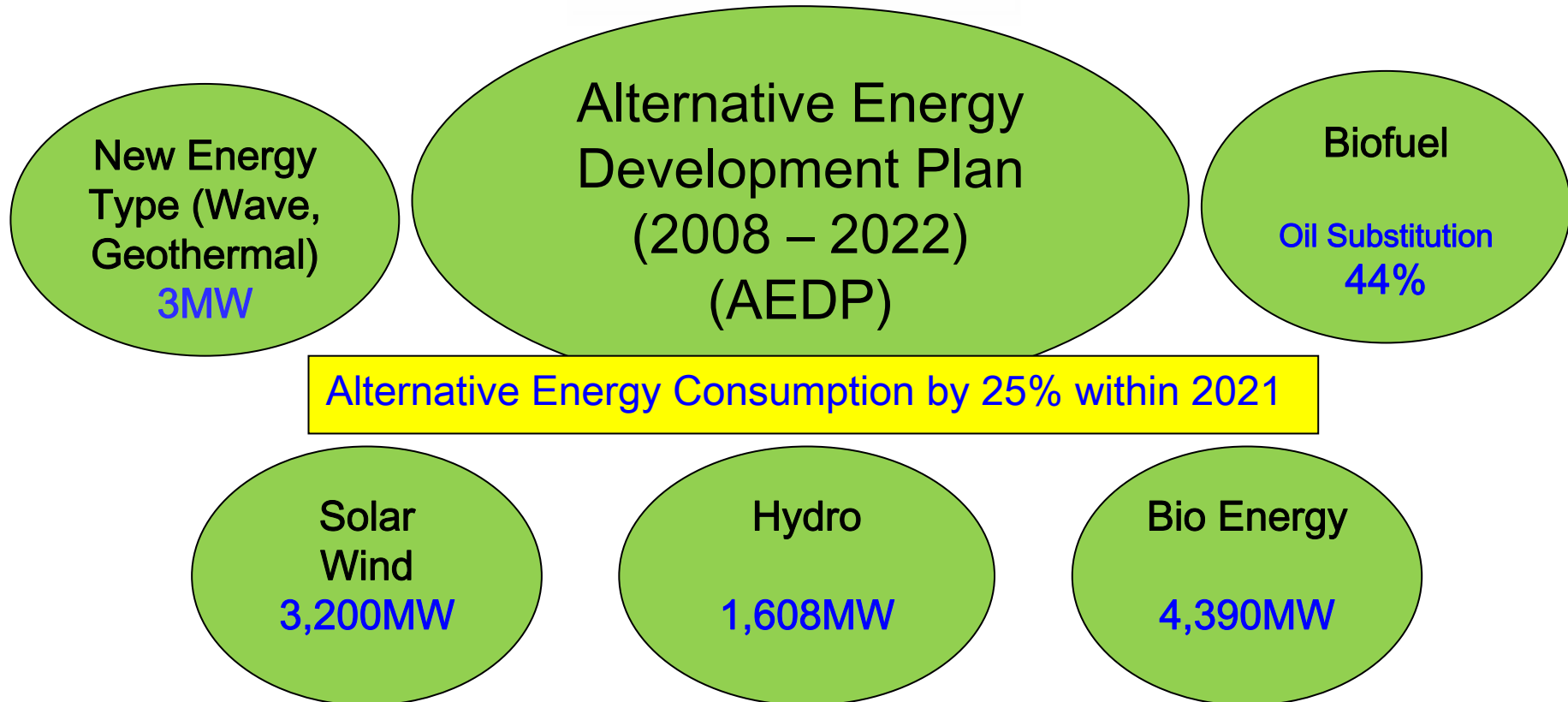
## ***PRLCE-1 in Thailand (Outline)***

- **Thailand** hosted the first leg of PRLCE Phase 1 in **21~25 May 2012** with the focus on “**Alternative Energy Development Plan (2008 – 2022) (AEDP)**” on 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 then APERC President, Mr. Kenji KOBAYASHI lead the review team.



# *PRLCE-1 in Thailand (Framework of AEDP)*

Department of Alternative  
Energy Development and Efficiency  
**MINISTRY OF ENERGY**

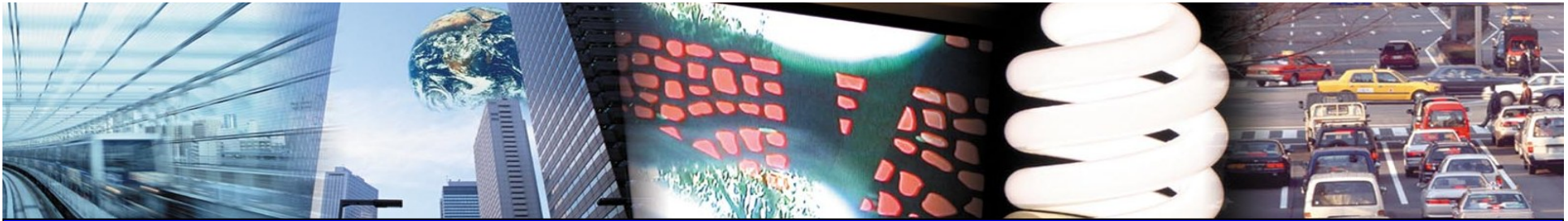




## ***PRLCE-1 in Thailand (Policy Recommendation)***

- Institutional Context - 5 Recommendations
- Alternative Energy Goals, Targets and Strategy - 5 Recommendations
- Regulation and Infrastructure and Monitoring - 8 Recommendations
- Energy Analysis by Source
  - ✓ Bioenergy including Biofuels - 6 Recommendations
  - ✓ Wind Energy - 3 Recommendations
  - ✓ Solar Energy - 3 Recommendations
  - ✓ Hydro Energy - 3 Recommendations





## ***PRLCE-1 in Thailand (Policy Recommendation)***

### Power Supply System

- Fit, Smart Grid and Private Participation

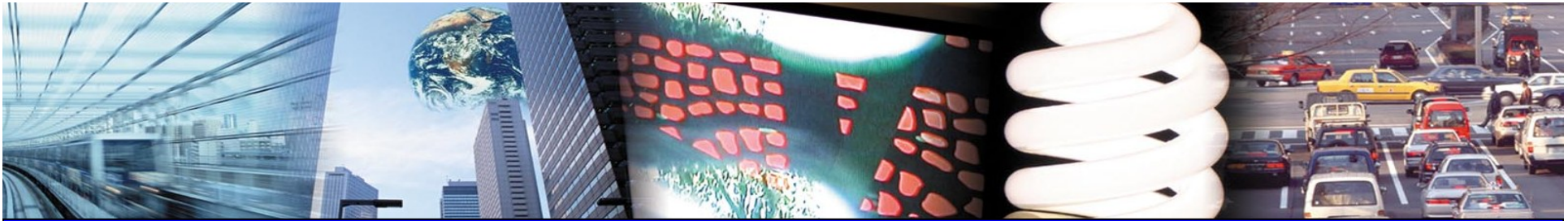
- 8 Recommendations

### Green House Gas Management

- 4 Recommendations

45

**Policy Recommendations**



## ***PRLCE-1 in Thailand (Policy Recommendation)***

### **The Experts' Recommendations**

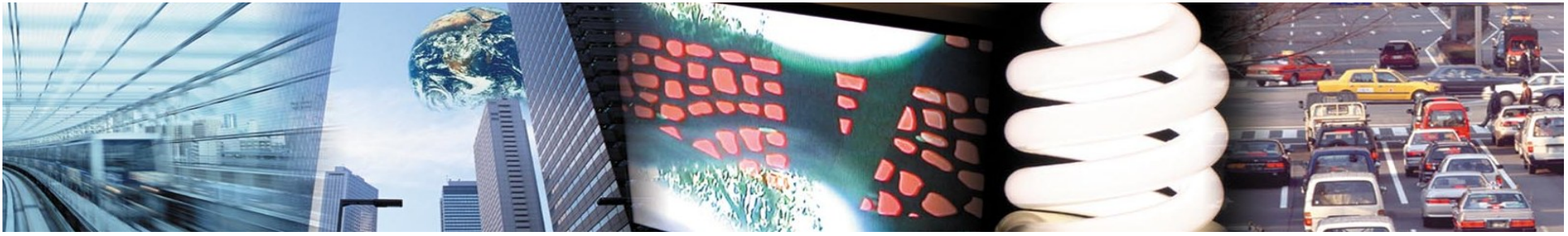
- ❑ The development of bioenergy standards, the promotion and development of domestic bioenergy industries;
- ❑ Technical capabilities both in government, academia and industry to handle challenges with the target of 1200MW wind capacity;
- ❑ Accreditation system and a sufficient number of professional engineers and skilled workers to set up and monitor PV systems.
  - Stricter monitoring of hydro power plants' (including small hydro plants') compliance with environmental regulation;



## ***PRLCE-1 in Thailand (Policy Recommendation)***

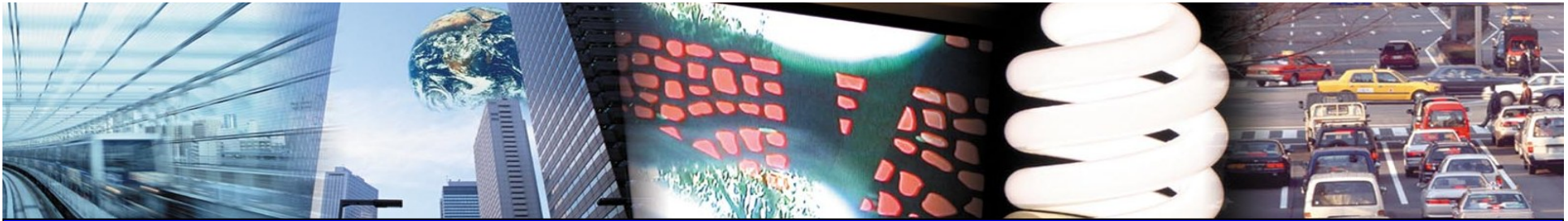
### **The Experts' Recommendations**

- ❑ Evaluation of tariff system (FiT) on a periodic basis;
- ❑ The involvement in APEC related activities on smart grid;
- ❑ Consistencies among policies, especially with regards to encouraging Clean Development Mechanism projects, which will assist the green house gas mitigation target set out in the 2010 Power Development Plan.



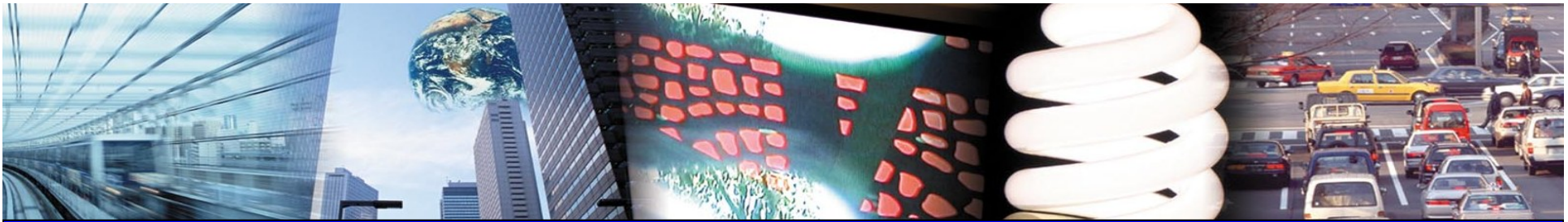
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## ***PRLCE-2 in the Philippines (Outline)***

- **The Philippines** hosted the second leg of PRLCE Phase 1 in **19~23 November** with the focus on **National Renewable Energy Program (NREP) (2011-2030)**.
- The review team consisted of **6 experts** (from China, Japan, Malaysia, New Zealand, Thailand, IRENA) and **3 APERC Researchers**. The APERC President, Mr. Takato OJIMI lead the review team.



# ***PRLCE-2 in the Philippines (Framework of NREP)***



**National Renewable  
Energy Program  
(NREP)  
2011 – 2030**

**Geothermal**  
**3,461MW**

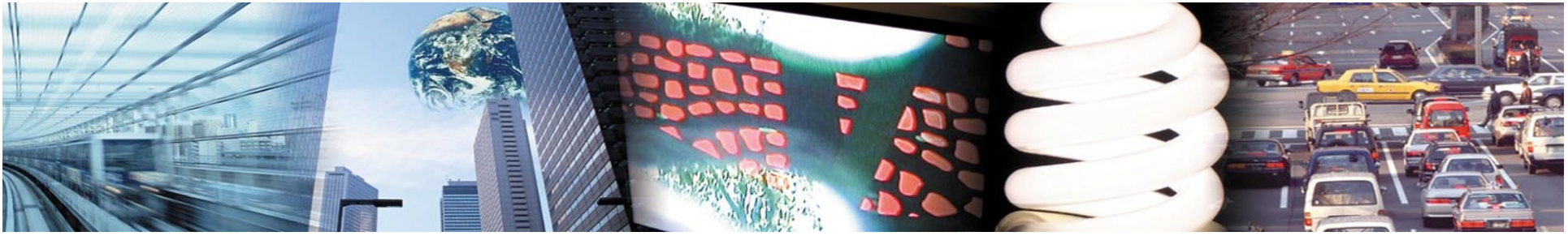
**Ocean**  
**70.5MW**

**Hydro**  
**8,724.1MW**

**Biomass**  
**315.7MW**

**Wind**  
**2,378MW**

**Solar**  
**285MW**



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## *Participation Invitation*

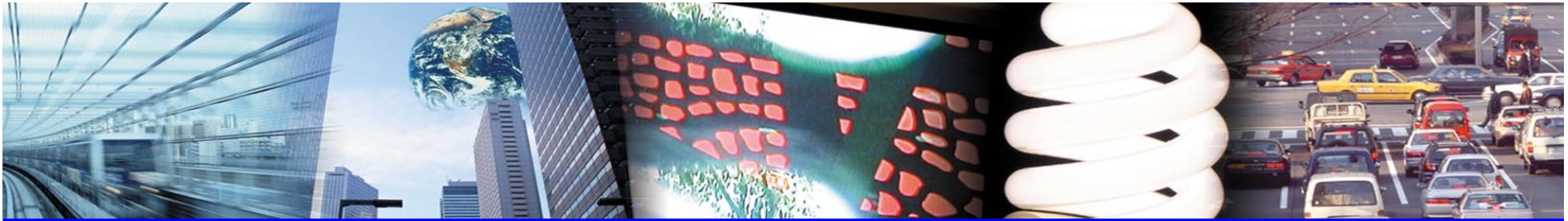
- 2 Economies are currently invited to volunteer to host PRLCE Phase 2.
  - Expecting candidates: **Mexico, Indonesia, Malaysia, or Viet Nam,**
- The participation of experts from member Economies is the important key to the success of PRLCE.





## *Accumulation of knowledge and Wisdom*

- There exist established knowledge base and conventional wisdom to improve energy efficiency for PREE.
- However, such established knowledge base and conventional wisdom to promote low-carbon energy (especially, renewable energy) has not been accumulated for PRLCE.
- The Institute of Energy Economics, Japan (IEEJ) was consigned to compile renewable energy promotion policies as “*Policy Template*” in order to offer reference for the experts in PRLCE.



## ***Accumulation of knowledge and Wisdom***

- IEEJ is now drafting “*Policy Template*”. The contents of the draft are as follows:
  - ✓ Current Status in Member Economies
  - ✓ The Roles and Barriers to Renewable Energy Policy
    - Definition of renewable Energy
    - The Role of Renewable Energy in Developing Economies
  - ✓ What are the Barriers to Renewable Energy Utilization?
  - ✓ Key Government Stakeholders in Renewable Energy Policy making
  - ✓ The important of individual goals setting and action plans for PRLCE
  - ✓ 1. Policy and Program Planning
    - Type and Role for Renewable Energy Policies



## ***Accumulation of knowledge and Wisdom***

### ✓ 1. Policy and Program Planning (cont'd)

#### Policy Measures to Promote Renewable Power Supplies

- (1) Quota Obligation: Renewable Portfolio Standard (RPS)
- (2) Bidding Scheme
- (3) Feed-in Tariff (FIT)
- (4) Others

#### Financing Programs and Project

- (1) Special Fund
- (2) International Cooperation

#### Industry Strategy (Manufacturing and Export)

### ✓ 2. Realization of Promotion of Renewable Policies

#### GHG Mitigation and Sustainable Development

#### Energy Security



## ***Accumulation of knowledge and Wisdom***

- ✓ 2. Realization of Promotion of Renewable Policies (cont'd)  
Benefits to Economy (GDP, Employments)
- ✓ 3. Experiences among APEC Developing Economies  
Case Study (1): Renewable Energy in Philippines  
Case Study (2): FIT in Thailand  
Case Study (3): FIT in Malaysia  
Case Study (4): Renewable Energy Policy in Korea  
Case Study (5): Current Status in Germany and Spain
- ✓ 4. Prospects of Renewable Energy Policies in the APEC Region  
Renewable Energy Target for a Community strategy and Action Plan  
Key Consideration for Policy Selecting or Evaluating  
Bilateral Credit System in APEC Region





## *Accumulation of knowledge and Wisdom*

- ✓ Further survey and research are required for *policy measures* as well as *technology development* of low-carbon energy (especially renewable energy) in order to achieve better performance of PRLCE.
- ✓ There will be a possibility of cooperation in these fields between EGNRET and APERC.



**Thank you for your kind attention**

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