Asia-Pacific Economic Cooperation

EGNRET 48 Meeting

【EWG 23 2015A】 Best Practices for Developing the Green Energy Smart Farm in the APEC Region

Proposing Economy: Chinese Taipei

Co-sponsoring economies: China, Korea, Thailand, USA

2016.12 - 2017.03

Keng-Tung Wu, PhD

National Chung Hsing University

30 March, 2017 Jeju, Republic of Korea

APEC PERU 2016

APEC Peru 2016
Quality Growth and Human Development

Best Practices for Developing the Green Energy Smart Farm in the APEC Region (EWG 23 2015A)

Priority work plan on Development of rural communities (RD) for Enhancing the Regional Food Market

"Support for the realization of the initiative on best practices for developing the Green Energy Smart Farm in the APEC Region, led by Chinese Taipei."

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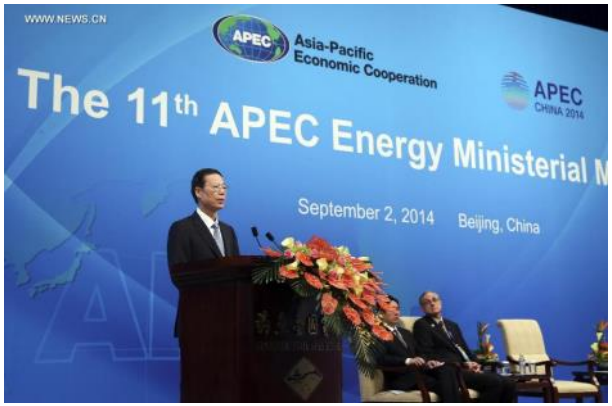
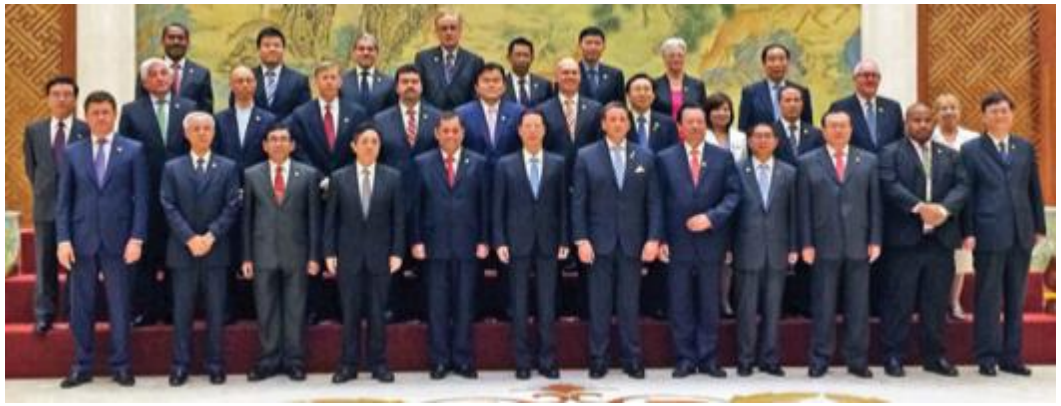
Background

Energy Ministers at APEC Energy Ministerial Meeting (**EMM11**) in 2014 reaffirmed the UN's 2011 "**Sustainable Energy for All" (SE4All) initiative** (i.e., **ensuring universal access to modern energy services**, **doubling the global rate of improvement in energy efficiency**, and **doubling the share of renewable energy in the global energy mix by 2030**.





Background

- Most farms in APEC's developing economies are located in the remote rural areas, and are difficult to connect the centralized power grid for access to the modern and clean energy.
- These farmers and their family rely on burning traditional biomass fuels directly for cooking, heating, studying, etc. breathing in toxic smoke.
- Only introducing the modern and clean energy can relieve them from the time-consuming drudgery to improve their living conditions.

Objectives

1. Assess and demonstrate the small-scale distributed renewable energy in the farms including solar PV and advanced biomass energy derived from the agricultural waste for the APEC region
2. Introduce the PV-ESCO (energy service company) model, a financial mechanism to provide the economic benefits to farmers directly in the APEC regions
3. Help APEC's developing economies to build up the green energy smart farms with access to the renewable energy.
4. Assist the farmers and their family in reducing the poverty.

Developing Concept

RETI

Regulations

Economy

Technologies

Integration

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Keng-Tung Wu, PhD

Outcome

Workshop

Guidebook

Project Report

Demonstration Site

Outcome

Demonstration Site

A small demonstration site (test base) has been established in an experimental farm at National Chung Hsing University in Chinese Taipei to conduct project experiments and show the best practice model for developing the green energy smart farm in the APEC region.

Experimental Animal Farm, National Chung Hsing University, Chinese Taipei

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10 kW Small-scale Mobile Downdraft Gasification System for Agricultural Waste

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Keng-Tung Wu, PhD

Outcome

Workshop

1st Workshop
Apr 12-13, 2016
Taichung
Chinese Taipei

2nd Workshop
Oct 12-13, 2016
Jakarta
Indonesia

Two workshops of the best practice and experience exchange were conducted alongside a demonstration site visit to focus on the preliminary findings in light of the desired outcomes.

It offers an opportunity to assess the validity of the preliminary findings, and provide the check, peer reviews and consultations, and also receive the feedback for further revised actions.

Speakers of 1st Workshop

Outcome

Workshop

2nd Workshop on Developing the Green Energy Smart Farm in the APEC Region

BPPT, Jakarta, Indonesia

12 -13 October, 2016

Oct 12 - SESSION I: Policy Instruments and Measurements
1. The Legal Issues on Development of Green Energy Smart Farm
2. Economic Issues for Developing Green Energy Smart Farm
3. Introducing PV-ESCO Mechanism to Green Energy Smart Farm
4. Social Enterprise and Green Energy Smart Farm
Oct 12 - SESSION II: Technologies and Case Study
5. Smart DC Power Opportunity for Community and Farm in Thailand
6. Distributed Biomass Gasification Power System in Indonesia
7. Applying Biogas Technology for Green Energy Smart Farm
8. Microturbine Generators for Agricultural Usage
Oct 13 - SESSION III: Site Visit

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Outcome

Workshop

2nd Workshop delegates

2nd Workshop site visit

Outcome

Guidebook

A Guidebook will be published to provide all useful information and knowledge about building a green energy smart farm including

- **the type and definition of renewable energy,**
- **constructing a small-scale standalone distributed renewable energy system,**
- **ESCO financial mechanism,**
- **APEC economies' legislative,**
- **policy framework,** and
- **incentives of renewable energy,** etc.

This Guidebook will be uploaded to the APEC EGNRET's website, and also be delivered to the farmers who request support to build up a green energy smart farm.

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Outcome

Project Report

The final project report is produced highlighting the recommendations with suggested roadmap to develop the green energy smart farm with the small-scale standalone distributed renewable energy system, and the ESCO financial mechanism in the APEC region.

The main contents of this report includes introduction to standalone distributed renewable energy system and installation, APEC legislative and policy framework, ESCO financial mechanism, research and technical development (RTD), challenges and barriers, deployment roadmap, recommendations, etc.

國立中興大學 National Chung Hsing University
Keng-Tung Wu, PhD

Thank you for your attention.

■ Contact ■ ktwu@itri.org.tw (Dr Keng-Tung Wu)

Hsinhua Experimental Forest Stations, NCHU

國立中興大學 National Chung Hsing University
Keng-Tung Wu, PhD