



Pathway to Smart Grid Training Facility in UiTM

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**Solar Photovoltaic Energy Conversion Technology
Research & Applications (SPECTRA)**

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1. Introduction
2. UiTM Solar PV activities
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4. Way Forward – We are ready...

Introduction



Overview

- ❖ ASGC Series
- ❖ Government of Malaysia agenda on Renewable Energy
- ❖ Expert and competent workforce in the next wave of energy technology and system
- ❖ A Centre of Excellence (COE) in PV systems

The Journey

Introduction



Solar Photovoltaic Energy Conversion Technology Research & Applications (SPECTRA)



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Phase 1: The beginning

☐ 1999

- Services to Government
- Industry linkages

☐ 2006

- Photovoltaic Monitoring Center - Malaysian BiPV Project (UNDP)
- Solar Photovoltaic (PV) System Trainings
- Government funded research – PV Systems
- Services & Consultancy to Government
- Industry linkages
- Research – National and International

Phase 2: Milestones & Achievements

Aim: Assisting in fulfilling the **national target of Solar PV capacity** in Malaysia

Competency Training - Human capacity development

- ❑ Accredited Solar PV Training Center - by Sustainable Energy Development Agency (SEDA) Malaysia)
- ❑ Accredited Solar PV Master Trainers –competency course for technicians, engineers and trainers:
 - Grid-Connected PV; Stand-Alone PV
 - Train-of-Trainers PV System Courses – Installers; Chargeman & Wireman

Solar PV Activities



Research, Services and Consultancy

- ☐ Government funded Research
- ☐ SEDA Representative for Testing & Commissioning for Feed-in-Tariff Solar PV System (2014-2018) – 196 sites
- ☐ Consultant for SEDA Malaysia on PV Monitoring System (PVMS) – The National PV Monitoring & Performance Database (2017-present) – 161 sites

Books and Guidelines

- ☐ Standards Documents
- ☐ PV System Designs
- ☐ T&C Guidelines
- ☐ Solar Irradiation Map

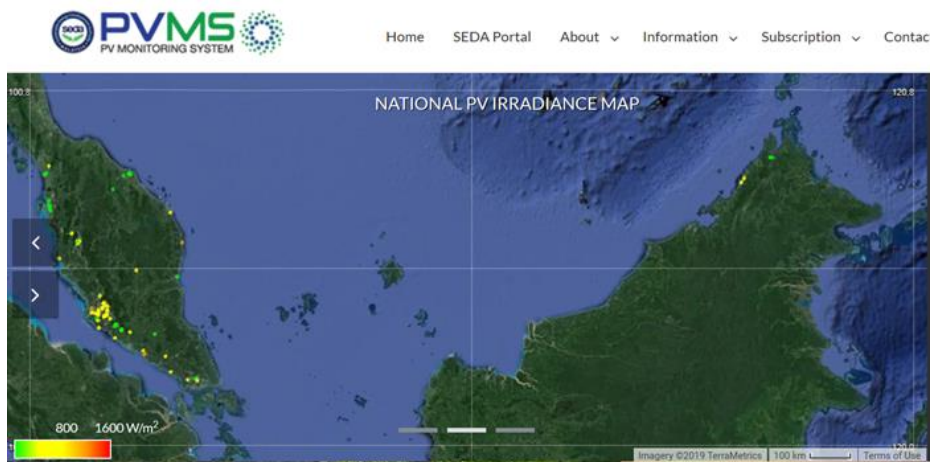
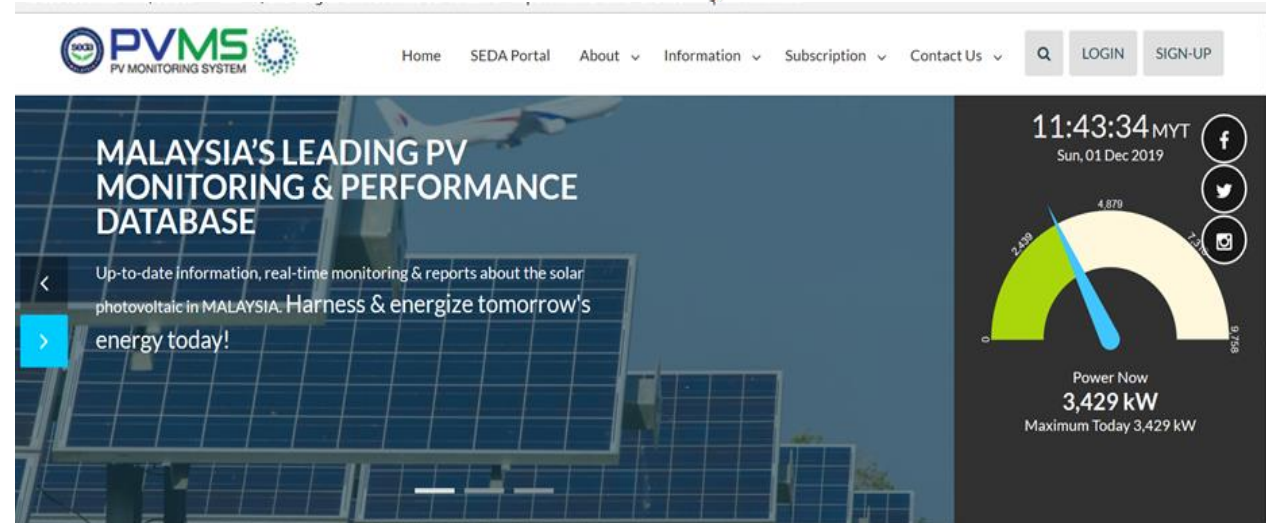
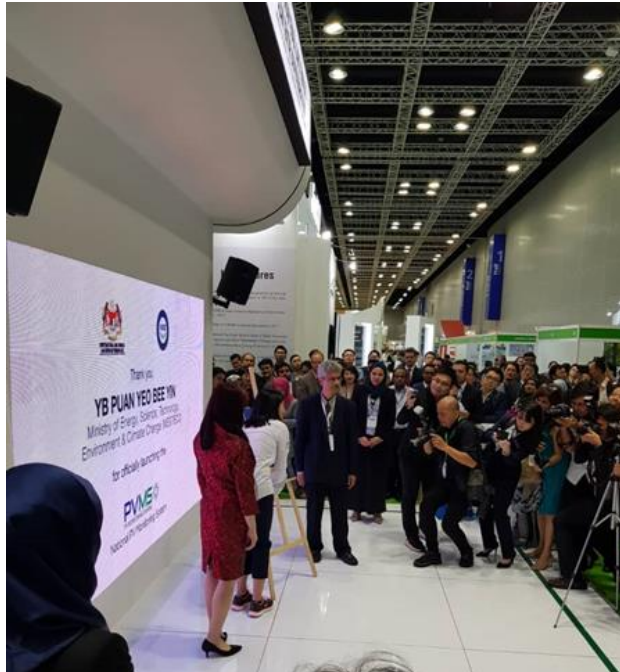
Solar PV Activities



T&C Fit GCPV System



Solar PV Activities



National and International linkages

☐ MoU

- Chiang Mai Rajabhat University, Thailand - 2014
- Universitas Indonesia, Indonesia - 2017
- Academic Cooperation of the ASEAN Smart Grid Congress – 8 countries
- SEDA Malaysia - 2018
- Malaysian Photovoltaic Industries Association

☐ ASEAN Smart Grid Congress 1: 16-18 Dec 2015

☐ ASEAN Smart Grid Congress 2: 8-10 Nov 2016

☐ ASEAN Smart Grid Congress 4: 11-13 Sep 2018

☐ HNEI, YASTI, APEC

Solar PV Activities



ASEAN Smart Grid Congress 1: 16-18 Dec 2015



Solar PV Activities



MOU UiTM-SEDA Malaysia 2017

MOU Di antara UiTM dan SEDA (Sustainable Energy Development Authority) Malaysia



Solar PV Activities



ASEAN Smart Grid Congress 2: 8-10 Nov 2016



Solar PV Activities



HNEI - 2019



YASTI - 2019



APEC - 2017



The Journey: Phase 1 to Phase 2

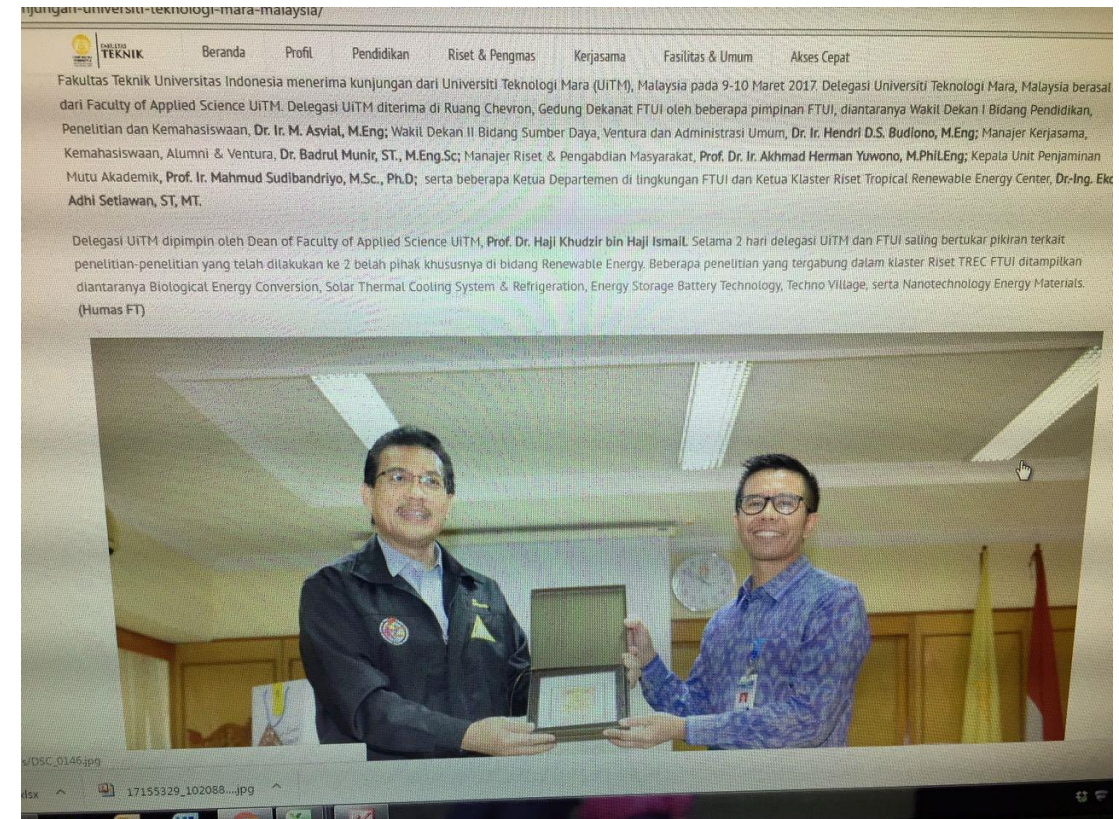
- ❑ Since 1999 – Transfer & sharing of knowledge, experience and know how
- ❑ 2013 -2015 : Proposals to upgrade the existing training site and facility
- ❑ 2015-mid 2017: Setting up and procurement – niche in SG research & training facility
- ❑ Mid 2017 – Training site taken over for public mass transportation system
- ❑ 2017-2019 – Planning and procurement for new SG research & training facility
- ❑ **SPECTRA** – officially registered in 2018
- ❑ **2020 – Way forward**

Phase 3: Action & Challenges

The final goal is to establish a **Centre of Excellence (COE)** in PV systems:

- service-oriented
- client-industry-driven
- well-equipped training and research facilities.

□ Universitas Indonesia: 8-9 Mar 2017



❑ Smart Grid Workshop 28-29 Aug 2017 – University of Phayao

Planning and Management of Micro Smart Grid System



GOAL

To plan and strategize activities to set-up, operate and maintain a working Smart Grid (SG) system at Faculty of Applied Sciences, UiTM Shah Alam.

1. Permanent site
2. Facility for teaching, research and training & consultancy – income generation
3. Strengthen ties & network:
 - sharing and exchange – knowledge/ staff/student
 - academia & industry

Smart Grid Vision



❑ Staff Exchange CMRU – UiTM

Nov-Dec 2017

Feb-Apr 2018

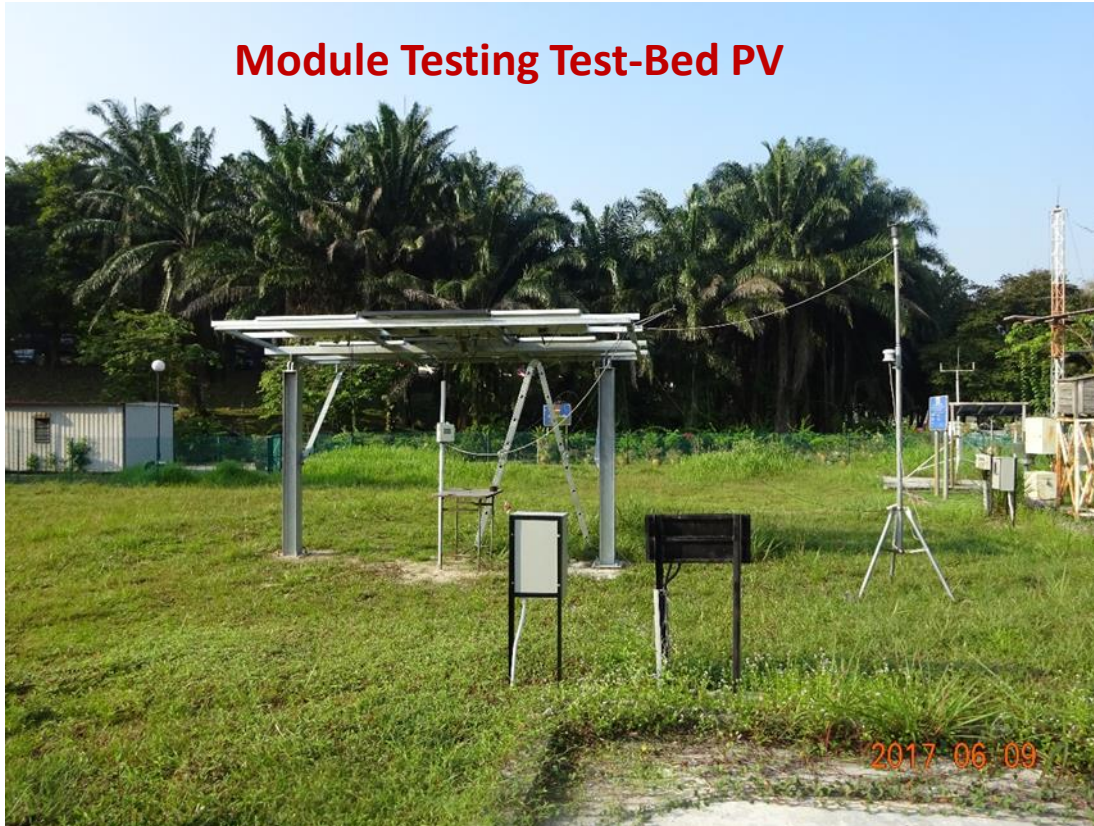


Training Facility and site – Year 2017



Training Facility and site – Year 2017

Module Testing Test-Bed PV



Proposed Solar PV SG Training Facility



Training Facility and site – Year 2017

ICT control room



Compound solar lighting



Training Facility and site – Year 2017

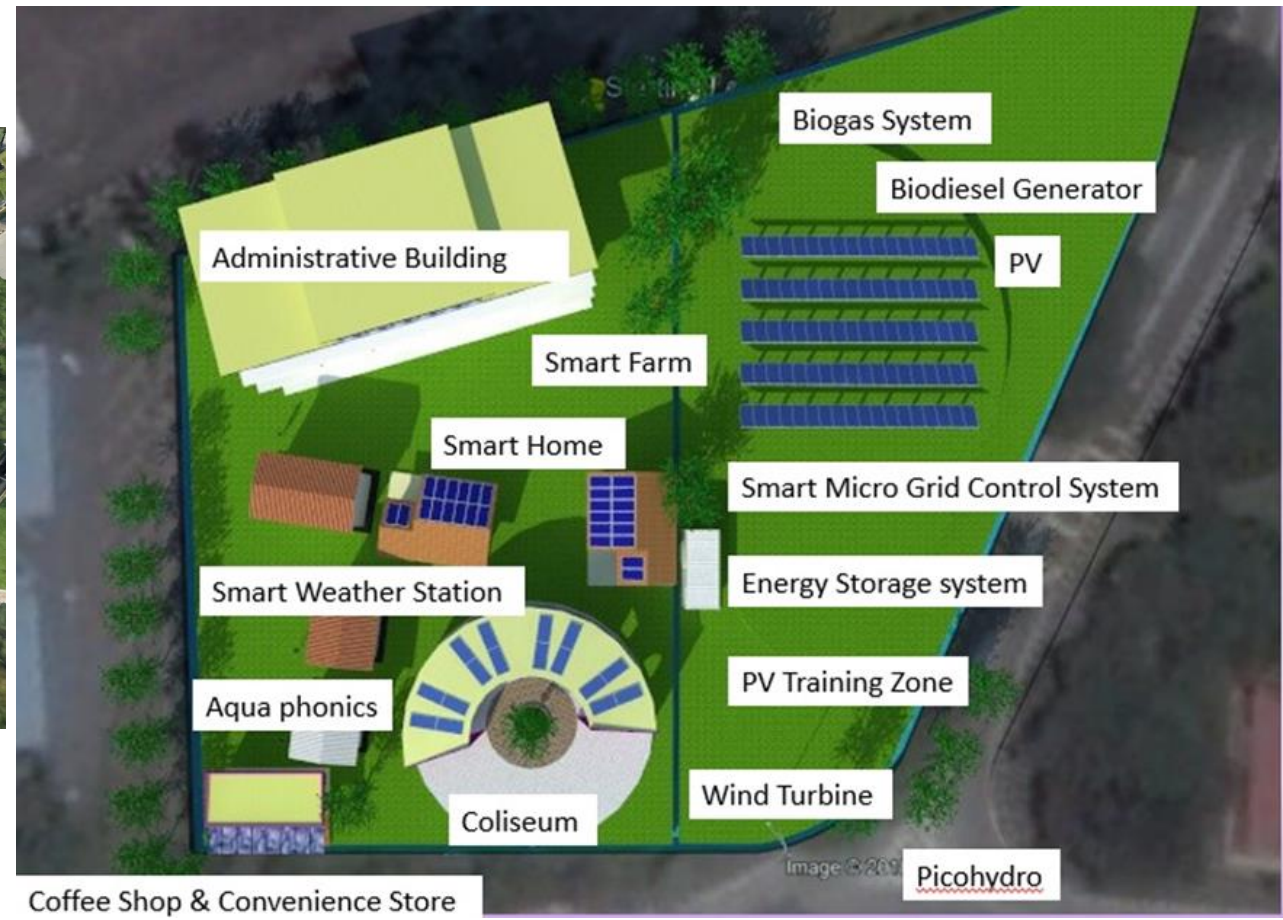


Smart Grid Vision



SPECTRA Smart Grid Training Facility – Year 2020++

Area: 5,000 sq.m



SPECTRA Smart Grid Training Facility – Year 2020



Way Forward



WE ARE READY

UiTM

Staff exchange /short stay/ student internship

☐ Academia

- HNEI -USA
- UI -Indonesia
- NU – Thailand
- CMRU - Thailand
- ASEAN universities and government agencies

☐ Industry

- MPIA
- ASEAN countries

Pathway to Smart Grid Training Facility in UiTM



The Journey & The Way Forward

THANK YOU