Appendix 4.2

[Smart Energy-Sharing and Management Devices for a Low Carbon Society]
[Symposium and Site Visit]
Report/Minutes Form

I. Organizer:

Name:	Dr. Natchpong Hatti
Position:	Senior Researcher
Institution:	National Electronics and Computer Technology Center (NECTEC)

II. Program:

Date: 19 – 21 August 2025
Venue: MOVENPICK SURIWONGSE Hotel, Chiang Mai
Rajamangala University of Technology Lanna (RMUTL), Doi Saket campus), Chiang Mai

Program Agenda:

19 August *Symposium*	09:00 – 12:00	**Venue**: Hotel's meeting room - **Dr. Teerasak Somsak** from RMUTL (Rajamangala University of Technology Lanna) presents on Clean Energy System Research Unit. - **Dr. Suparak Srita** (RMUTL) presents on *Community Collaboration and Practical Field Applications.* - **Dr. Sakda Somkun** (Naresuan University) introduces the School of Renewable *Energy and Smart Grid Technology* and discusses *Power Electronics in Renewable Energy Systems.* - **Dr. Natchpong Hatti** (NECTEC) presents on energy sharing devices — covering concept, design, demonstration sites, and ongoing improvements.
	12:00 – 13:30	Working lunch
	13:30 – 16:00	**Venue**: Hotel's meeting room - **Dr. Yasunori Owada** (NICT) introduces **NerveNet** and its applications for rural areas.
20 August *Symposium*	09:00 – 12:00	**Venue**: Hotel's meeting room - **Dr. Surasak Nuilers (NECTEC)** presents "Important Issues in Power Electronics for Renewable Energy And Rural Area Applications". - **Dr. Kanokvate Tungpimolrut (NECTEC)** presents on energy conservation for appliance with electrical motors. - **Mr. Seemeuang Chanthakhamany (NUOL)** presents on

		"Preliminary Conceptual Design of an Off-grid Photovoltaic System at the Faculty of Engineering (FEN), National University of Laos (NUOL)" - **Dr. Lihour NOV (CADT)** presents on The Core Concept of IoT and Its Applications. - **UCSY team** presents on "Current Utilization and Potential of Solar Energy Infrastructure at UCSY for Sustainable Campus Development".
	12:00 – 13:30	Working lunch
	13:30 – 16:00	**Venue**: **Site visit** to RMUTL (Doi Saket campus)
21 August *Meeting*	09:00 – 12:00	**Venue**: Hotel's meeting room Share information on current status and technical requirement of each member country - NUOL team - CADT team - UCSY team - NECTEC team - NICT team
	12:00 – 13:30	Working lunch
	13:30 – 16:00	**Venue**: Hotel's meeting room Conclude the output of symposium and reconfirm the future plan.

III. Participants:

No.	Name	Organization
1	Dr. Natchpong Hatti	NECTEC, TH
2	Dr. Kanokvate Tungpimolrut	NECTEC, TH
3	Dr. Surasak Nuilers	NECTEC, TH
4	Mr. Pichet Pudson	NECTEC, TH
5	Dr. Vimontha Khieovongphachanh	NUOL, LA
6	Mr. Seemeuang Chanthakhamany	NUOL, LA
7	Dr. Sovuthy CHEAB	CADT, KM (Online)
8	Dr. Yasunori Owada	NICT
9	Dr. Thin Lai Lai Thein	UCSY, MM
10	Dr. Win Lelt Lelt Phyu	UCSY, MM
11	Dr. Suparak Srita	RMUTL, TH
12	Dr. Teerasak Somsak	RMUTL, TH
13	Dr. Sakda Somkun	NU, TH
14	Mr. Nattawat Panlawan	RMUL
15	Dr. Montri Ngaodet	RMUL
16	Mr. Kan Nakaiam	RMUL
17	Mr. Kittinan Srasuay	RMUL

18	Mr. Narong Nanthakuson	RMUL
19	Mr. Naris Khampangkaew	RMUL
20	Mr. Worrajak Muangjai	RMUL
21	Mr. Sarawut Thawi	Local community, Mae Pang subdistrict
22	Mr. Niwat Kantawong	Local community, Mae Pang subdistrict
23	Mr. Kris Julakaseree	Local community, Mae Pang subdistrict

(Note: please add participants list if there are a lot of people participated the event)

IV. Summary of the activities corresponding to the objectives.

1. *Briefly describe the objectives of the event.*

1.1 To foster collaboration and promote the sharing of knowledge and innovations in IoT, AI, power electronics, and smart energy management among project members and local academics.

1.2 To exchange practical experiences and solutions for achieving resilient and sustainable rural development.

1.3 To organize a meeting among project members to align the direction, scope of work, action plans, and acknowledge specific limitations in each member country.

1.4 Dr. Sakda Somkun is a specialist in the field of power electronics. He works as a lecturer at the School of Renewable Energy and Smart Grid Technology, Naresuan University. Inviting him as a speaker to this symposium would strengthen collaboration, encourage knowledge exchange, and allow for valuable comments and suggestions—not only during the symposium, but also for the future development of the project.

2 Describe the activities corresponding to the objectives.

2.1 **Objective:** To foster collaboration and promote the sharing of knowledge and innovations in IoT, AI, power electronics, and smart energy management among project members and local academics.

Activities: The symposium and site visit were organized where project members presented their research on IoT, power electronics, and smart energy management. Local academics also shared their perspectives on community needs, particularly in off-grid areas. Panel discussions and Q&A sessions enabled active knowledge exchange.

As part of this, Asst. Prof. Dr. Teerasak Somsak from Rajamangala University of Technology Lanna (RMUTL) introduced the Clean Energy System Research

Unit and discussed rural area applications. Dr. Surarak Srita from RMUTL presented on community collaboration and practical field applications, with additional RMUTL participants contributing to the event.

A site visit to RMUTL's Doi Saket Campus was conducted to showcase real-world rural energy applications. In addition, representatives from local communities in Mae Pang Subdistrict joined the symposium to share their challenges with off-grid power systems.

Based on these discussions, the project team planned a follow-up site visit to Mae Pang at the end of September 2025. This visit will include:

- Collecting information on specifications and current conditions of existing energy sources and electrical loads in the targeted testing areas.
- Engaging with community leaders and end users to reconfirm their requirements and understand problems and limitations of existing systems.
- Observing actual site environments to identify potential obstacles for the design and installation of Energy Sharing Devices and/or a Wireless Communication System, ensuring the most suitable solution for each location.

2.2 **Objectives:** To exchange practical experiences and solutions for achieving resilient and sustainable rural development.

Activities:

In the symposium and site visit, discussions were held, during which participants shared real-world experiences from rural development initiatives. Case studies on rural area applications and renewable energy integration were presented. The exchange allowed members to identify adaptable strategies for different local contexts and to co-create practical, sustainable approaches.

2.3 **Objectives:** To organize a meeting among project members to align the direction, scope of work, action plans, and acknowledge specific limitations in each member country.

Activities:

Coordination meetings were held with the participation of all project members. Each country presented its specific challenges, which were openly discussed to ensure mutual understanding. Based on these exchanges, the project team adjusted action plans to remain realistic, flexible, and responsive to local contexts.

The challenges and corresponding action plans identified for each member country were as follows:

- **Thailand**: The key challenges included the distance to the demo site, difficult road conditions, lack of communication signal, insufficient details about the actual site in Mae Pang, Chiang Mai, and limited availability of local technicians. The agreed action plan was to conduct a joint site visit with NICT to design the overall system—including energy management and IoT—and to coordinate with RMUTL regarding system maintenance.
- **Lao PDR**: The main challenge was the need for a discussion in a more realistic context with the power system engineer to obtain an exact solution for installing an additional off-grid PV system to enable energy sharing through an online platform. The action plan was to hold a small group meeting with the Thailand team and engineers to discuss the technical details.
- **Myanmar**: Challenges included energy shortages at USCY and the need for additional information—such as electrical load profiles, energy production, and energy storage status for each period—regarding the problems of the existing power systems. In addition, equipment procurement faced difficulties due to regulations and currency fluctuations. The agreed action plan was to organize a small group meeting with the Thailand team and responsible engineers, with the goal of installing an Energy Management Box (EMB) to collect system data before moving forward with further plans.
- **Cambodia**: It was difficult to secure a suitable demo site near Phnom Penh, as many off-grid power system owners were reluctant to allow external involvement. The action plan included discussions with the Thailand team to define the scope of work with alternative options—for example, installing only IoT systems for demonstration purposes instead of building new off-grid systems, or identifying alternative demo sites closer to Phnom Penh to facilitate long-term maintenance. In the case of installing a new off-grid power system, it should serve to verify the utilization of the EMB or ESD in this project. The demo site should also be within the range of responsibility of CADT or another designated party for long-term maintenance, especially after the project is completed, as there will be no budget available from this project to support ongoing system care.
- **NICT, Japan**: NICT has NerveNet, which will be useful for remote communications and can be integrated with cloud or edge systems. During the symposium, we found that many target areas in Thailand lack reliable communication signals. In particular, in Mae Pang Subdistrict, Chiang Mai,

some areas do not have access to either the utility grid or communication networks. This presents an opportunity to deploy NerveNet together with an Energy Sharing Device (ESD) or an Energy Management Box (EMB). A site visit will be required to collect information, engage with community leaders and end users, and observe the actual site conditions to identify potential obstacles for the design and installation of the ESD and/or a wireless communication system, thereby ensuring the most suitable solution for each location. We therefore propose conducting a site visit at the end of September 2025.

2.4 Objective: Dr. Sakda Somkun is a specialist in the field of power electronics. He works as a lecturer at the School of Renewable Energy and Smart Grid Technology, Naresuan University. Inviting him as a speaker to this symposium would strengthen collaboration, encourage knowledge exchange, and allow for valuable comments and suggestions—not only during the symposium, but also for the future development of the project.

Activities:

Assoc. Prof. Dr. Sakda Somkun was invited as an invited speaker at the symposium, where he delivered a lecture on power electronics and its applications in renewable energy and smart grids.

3. Describe, in detail, if there are changes in the work plan, project schedule, budget allocation, etc. from the initial proposal.

V. Others.

Venue for Symposium and Meeting

Opening Session

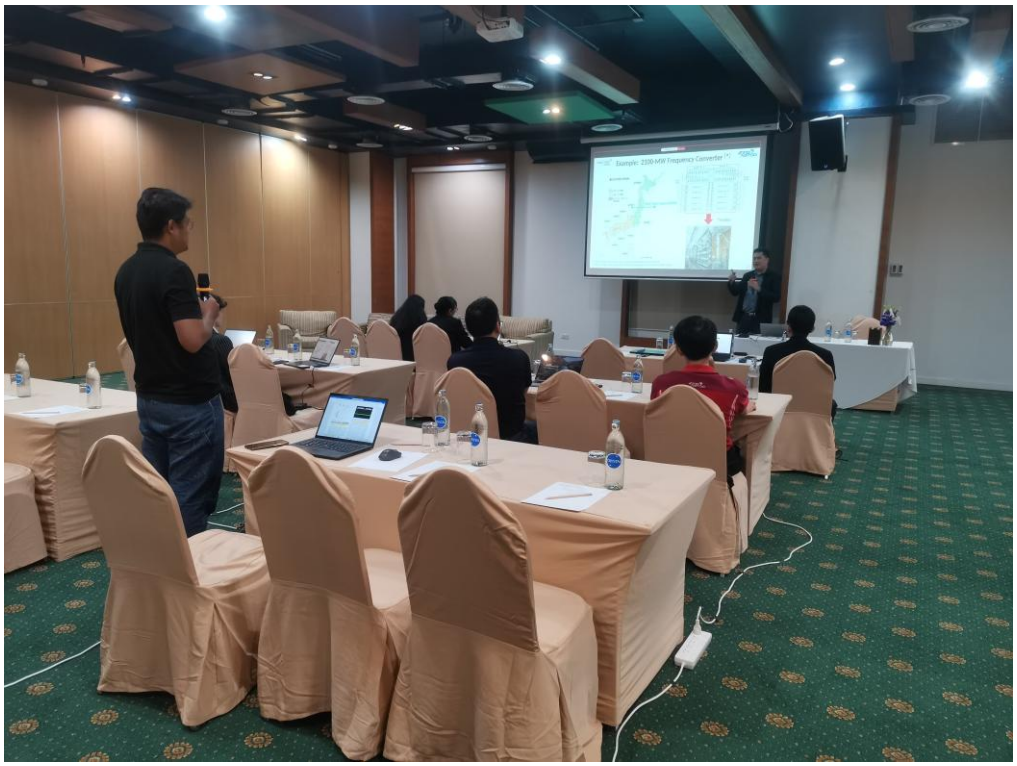
Dr. Teerasak Somsak's presentation

Dr. Suparak Srita's presentation

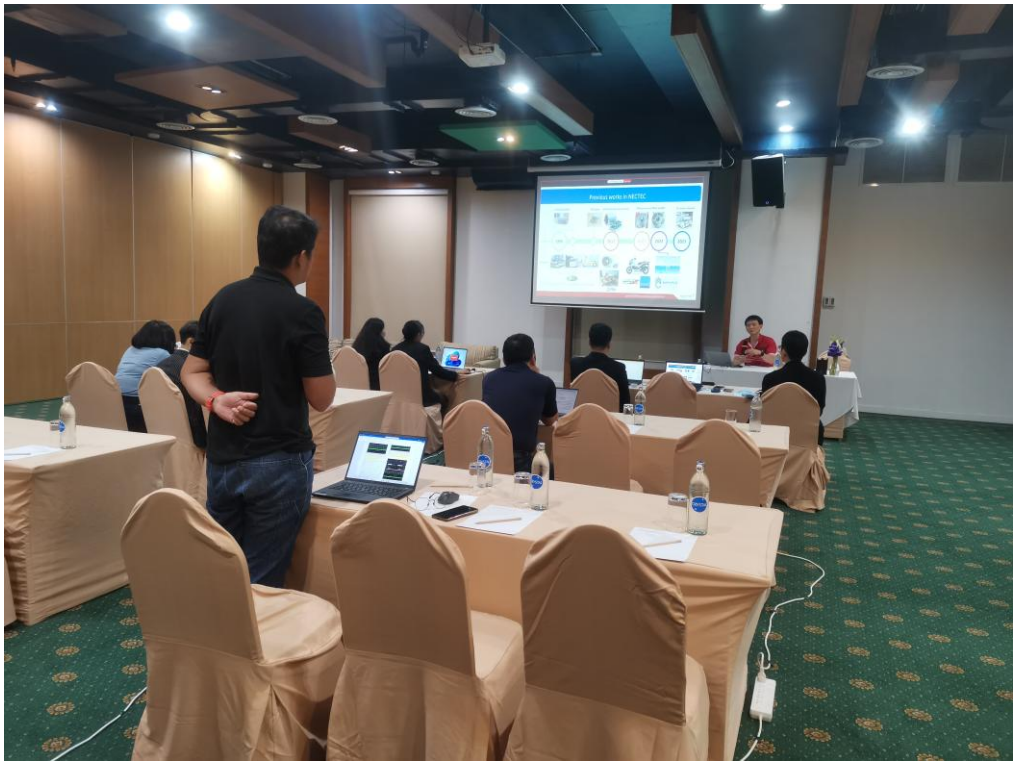
Dr. Sakda Somkun's presentation

Dr. Natchpong Hatti's presentation

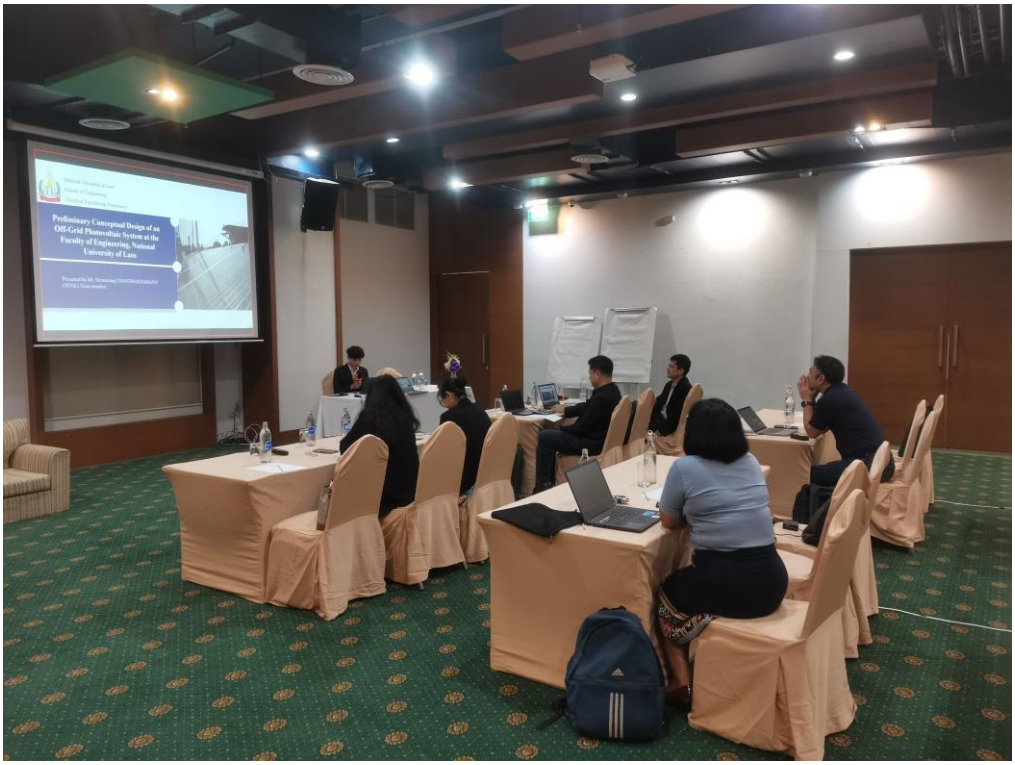
Dr. Yasunori Owada's presentation



Dr. Surasak Nuilers's presentation



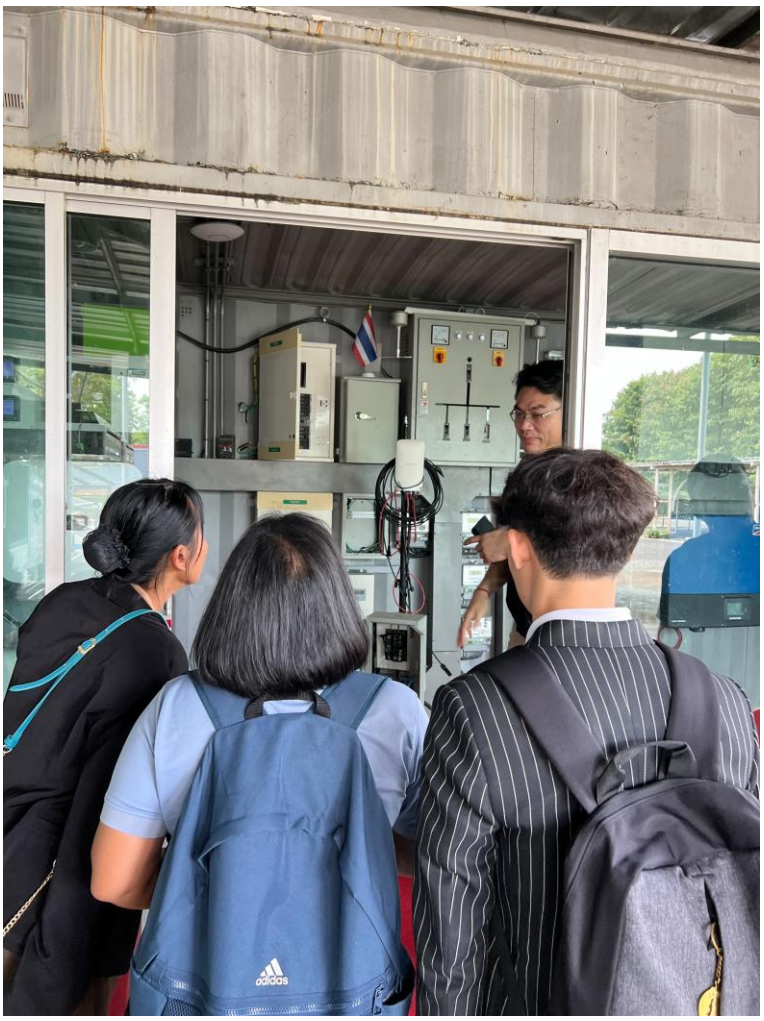
Dr. Kanokvate Tungpimolrut's presentation



Mr. Seemeuang Chanthakhamany's presentation

Dr. Thin Lai Lai Thein*'s presentation*

Site visit to RMUTL's Doi Saket Campus



Site visit to RMUTL's Doi Saket Campus

Site visit to RMUTL's Doi Saket Campus

Project Meeting