AN ANALYSIS OF BARRIERS FOR MICROGRID DEPLOYMENT: A CASE STUDY OF MAE SARIANG, MAE HON SONG PROVINCE, THAILAND

Mr. Bancha Yathip – Presenter

Rattanakosin College for Sustainable Energy and Environment,
Rajamangala University of Technology Rattanakosin

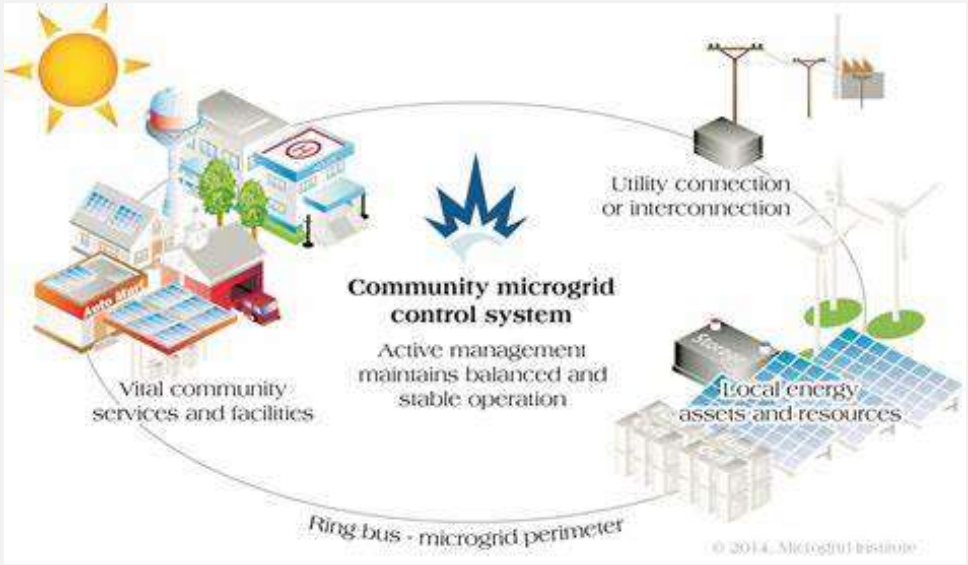
Assistant Professor Dr. Parnuwat Usapein – Advisor

Dr. Chakphed Madtharad – Co-advisor

CONTENT

MOTIVATION

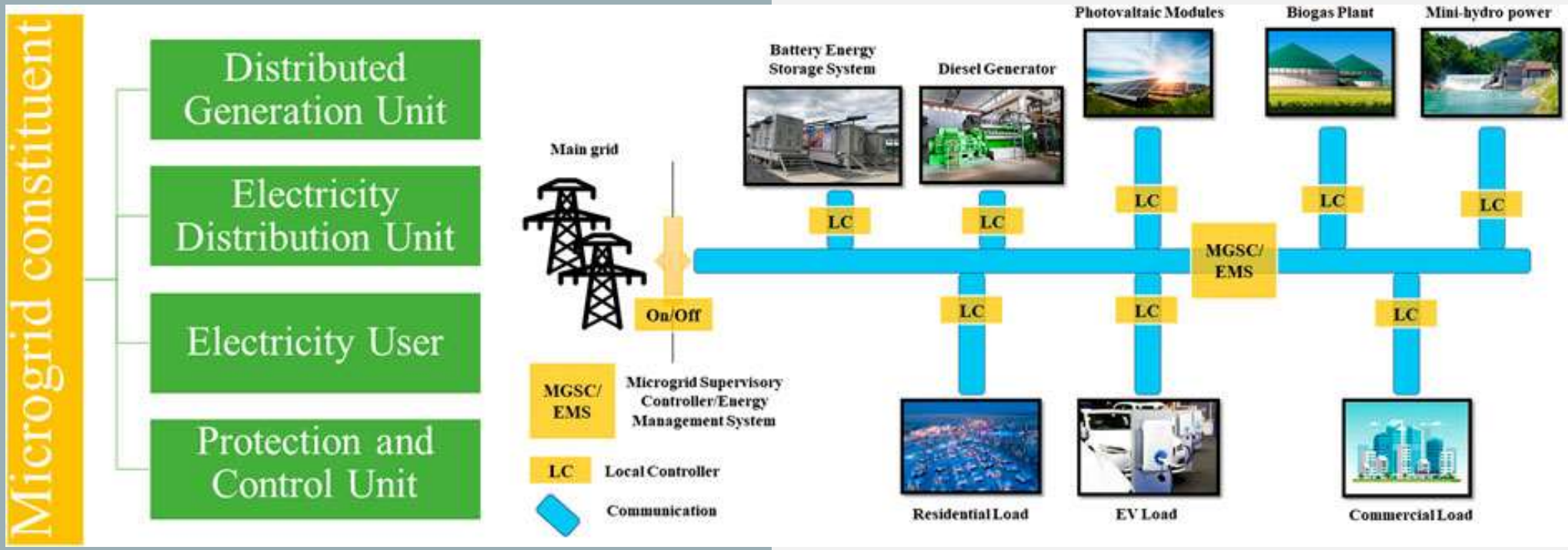
Ensure access to affordable, reliable, sustainable and modern energy for all



- A microgrid is a small-scale, low-voltage power system that combines energy storage, automated control systems, information and communication technologies, power generation, and electricity consumption into one system

- It is a collection of interconnected loads and distributed energy resources (DER) that operate as a single, controllable entity with respect to the grid and are contained within well-defined electrical limits

MOTIVATION



Source: Meenual, T., & Usapein, P. (2021). Microgrid policies: A review of technologies and key drivers of Thailand. Frontiers in Energy Research, 9, 591537.

MOTIVATION

The goal for Thailand is to electrify all villagers' homes and businesses. Currently, 99.72% of houses and 99.99% of communities have electricity.

However, some area still faces the power outage due to storm and the unstable of electricity production.

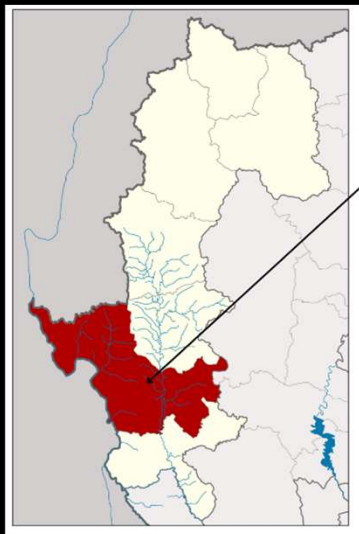
Mae Sariang District, Mae Hong Son Province, Thailand is one of the areas known for the most frequent power outages in Thailand.

The Hod's substation, which is located approximately 110 kilometers away, supplies energy to the area of Mae Sariang District.

OBJECTIVES

- Identify the criteria ranking and barriers for microgrids.

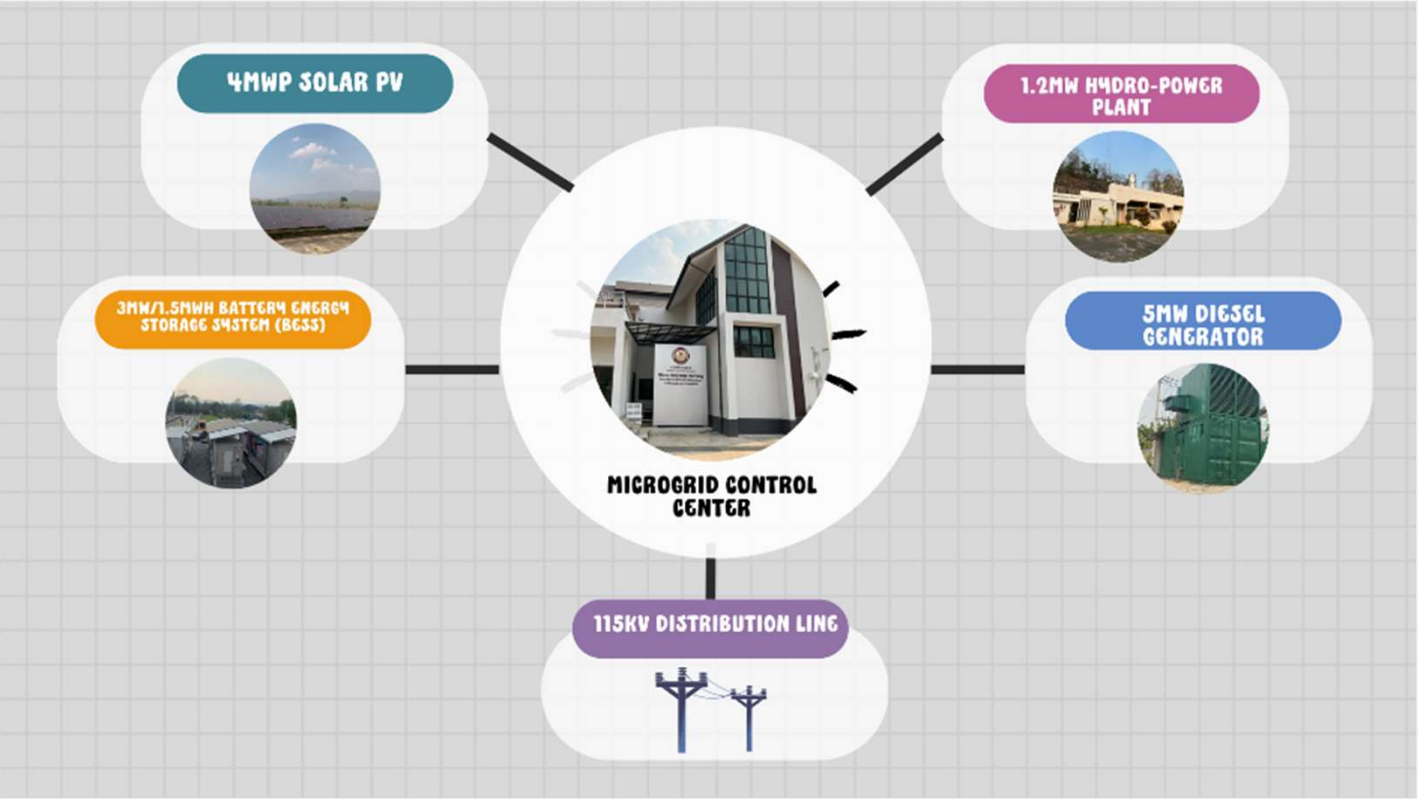
SCOPE OF WORK



Mae Sariang District

- Population 54,529 people
- Total area 2,497.2 km2
- Density 21.84 people / km2

CASE STUDY


4MWP SOLAR PV
1.2MW HYDRO-POWER PLANT
3MW/1.5MWH BATTERY ENERGY STORAGE SYSTEM (BESS)
5MW DIESEL GENERATOR
MICROGRID CONTROL CENTER
115KV DISTRIBUTION LINE

METHODOLOGY

2.1 Questionnaire and survey

Three primary sections of the questionnaire were used in this study:
(1) information on the respondents;
(2) pairwise comparisons of the key criteria;
(3) an open-ended section for unstructured comments from respondents.

Pairwise comparisons were conducted using the structured form, which was related to five primary criteria: economics, structure, technology, production, and social and environmental factors.

Level of importance	Definition	Explanation
1	Equal importance	Two activities contribute equally to the objective.
3	Moderate importance	Experience and judgement slightly favor one activity over another.
5	Strong more importance	Experience and judgement strongly favor one activity over another.
7	Very strong or demonstrated importance	An activity is favored very strongly over another; and its dominance is demonstrated in practice.
9	Extreme importance	The evidence favoring one activity over another is of the highest possible order of affirmation.

METHODOLOGY

$$Aw = \begin{bmatrix} 1 & p & q \\ 1/p & 1 & r \\ 1/q & 1/r & 1 \end{bmatrix} \qquad (1)$$

Equation (2) can be used to obtain the consistency index.

$$CI = \frac{\lambda_{max} - n}{n - 1} \qquad (2)$$

where λ_{max} is the maximum eigen value of A, and n is the size of the matrix $(n \times n)$

$$CR = \frac{CI}{RC} \qquad (3)$$

where RC is a random consistency of the matrix A that can be estimated using a standard table proposed by (Saaty, 1987). The outcomes are acceptable if the CR is 0.1 or less. They should be revised again if it is not.

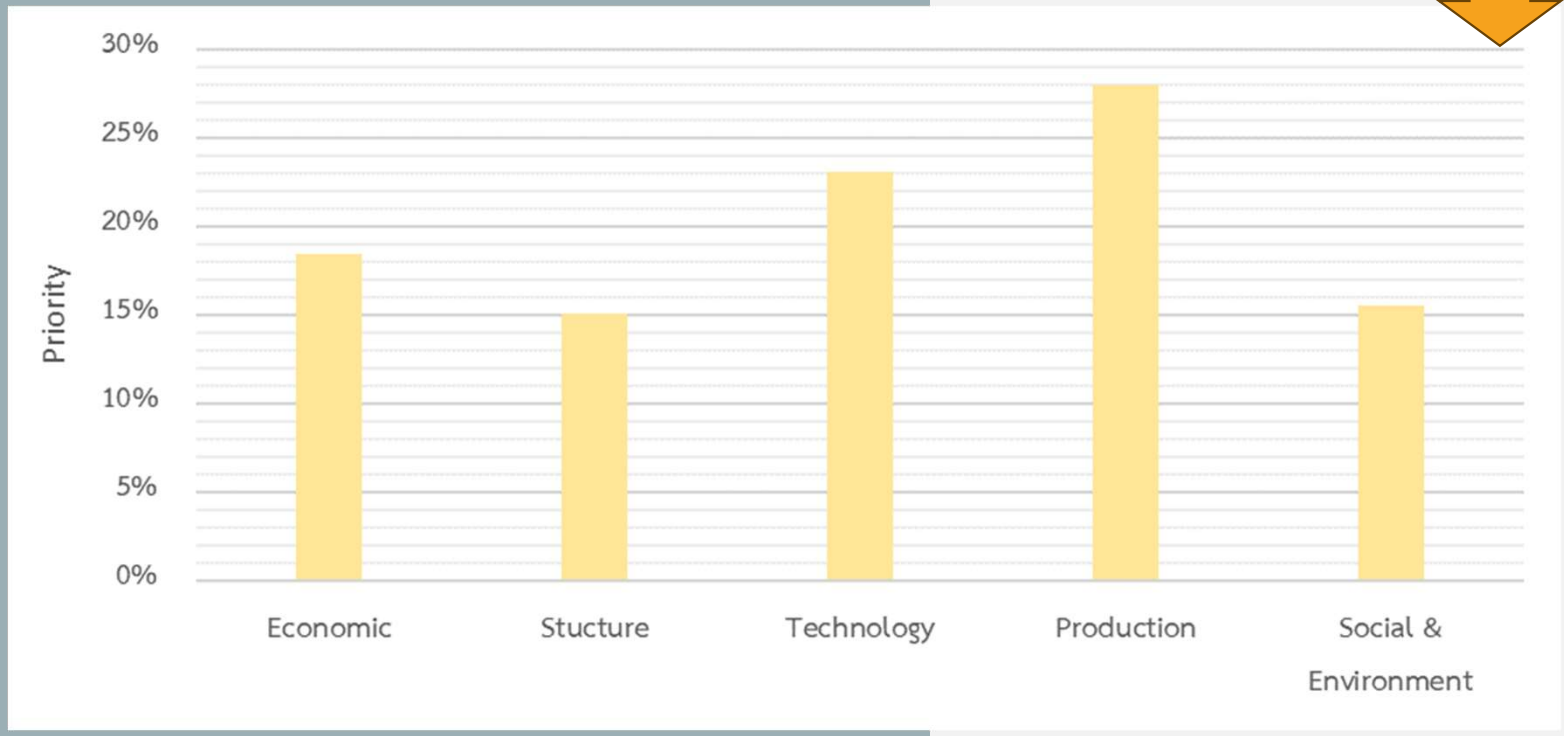
METHODOLOGY

2.2 Identified Barriers on Microgrid Project

Based on the literature and overarching patterns observed in the Mae Sariang case study, the most frequent hurdles were then determined and categorized into three groups: technical, regulatory, and social acceptance.

RESULT ON KEY CRITERIA RANKING

The criteria-wise preference analysis indicated that "production criteria" were the most favored, whereas "structure criteria" were the least.



BARRIERS TO IDENTIFICATION ON MICROGRID IMPLICATION

3.2.1 Technical barriers

- Microgrid technology is rapidly advancing and is limited to the few who own the technology, such as Schneider, General Motor Electric (GE), Siemens, Hitachi, etc. This makes microgrid technology expensive to implement microgrids for small projects.

- Software used in microgrids is relatively scarce, making access to technology limited.

- The microgrid system requires specialized technicians who must have knowledge in many fields to work on microgrids such as basic knowledge of electricity, computer, mechanical, solar cells, and batteries.

3.2.2 Regulatory and policy barriers

- Revised regulation the electricity trading between private sector and government, this issue is a bottleneck in Thailand's current support for renewable power generation.

- Microgrids should be used to connect to the grid of state power stations and use the same standards for interconnection and communications between the state and private microgrids.

- Reducing strict regulations, unlocking the private sector to trade electricity using microgrids, virtual power plants can be one of the promising ways to enhance microgrid growth.

BARRIERS TO IDENTIFICATION ON MICROGRID IMPLICATION

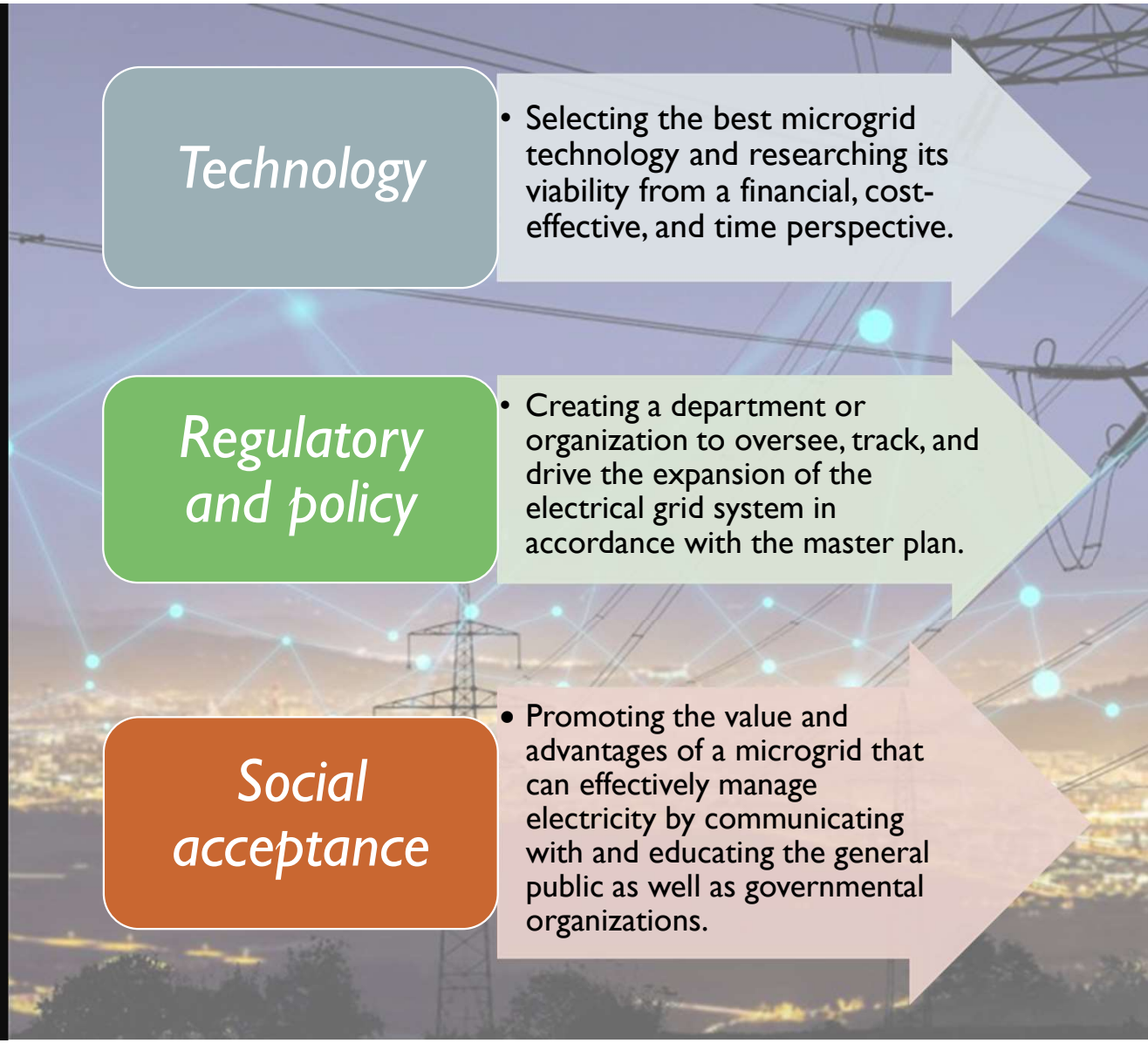
3.2.3 Social acceptance barriers

- People in areas with microgrids accept microgrid systems that are beneficial to communities that allow continuous use of electricity, reducing blackouts in the community.

- Less social problems because of higher economic growth due to electricity stability in the area resulted in reducing the unemployment rate in the area.

- Microgrids enhance occupational health security, and greater access to healthcare. People in the area have electricity to use confidently so that the power will not go out.

POLICY RECOMMENDATION



CONCLUSIONS

- It can be concluded that the production criteria are the most important factors to recognize for electricity production (27.97%).
- When determining barriers to microgrid implementation, technical barriers concern specialized technicians and limited software.
- The key concerns to lower regulatory obstacles include allowing the private sector to trade electricity via microgrids, and virtual power plants, and improved regulation of the electricity trading between the private sector and government.
- In the case of social acceptance, microgrid is a warm welcome from the community because it can help to enhance electricity stability; in addition, microgrids can become self-sufficient in the event of a grid failure due to a storm.

WORK PROGRESS 1/2566
OCTOBER 28,2023

รายงานความก้าวหน้าวิทยานิพนธ์/ดุษฎีนิพนธ์

กิจกรรม		เดือนมีนาคม 2566 – ธันวาคม 2566							
		มี.ค.64	พย.65	มีค.66	เมษา.66	พค.66	มิย-สค.66	ก.ย.-ต.ค.66	พ.ย.-ธ.ค.66
1.	สอบวัดคุณสมบัติ	↔							
2.	สอบโครงร่างวิทยานิพนธ์/ดุษฎีนิพนธ์		↔						
3.	รายงานความก้าวหน้า ครั้งที่ 1			↔					
4.	รายงานความก้าวหน้า ครั้งที่ 2				↔	↔			
5.	การนำเสนอต่อที่ประชุมวิชาการ						↔	↔	
6.	การตีพิมพ์ผลงาน (ฉบับที่ 1)							←----	---→
7.	การตีพิมพ์ผลงาน (ฉบับที่ 2)							←----	---→
8.	เขียนเล่มวิทยานิพนธ์/ดุษฎีนิพนธ์ฉบับสมบูรณ์								↔
9.	สอบป้องกันวิทยานิพนธ์/ดุษฎีนิพนธ์								↔

หมายเหตุ : ให้ระบุเดือนที่เริ่มดำเนินการ

←---------→ หมายถึง งานหรือกิจกรรมที่วางแผนไว้ว่าจะดำเนินการ

←——→ หมายถึง งานหรือกิจกรรมที่ได้ทำแล้ว

WORK PROGRESS 1/2566
OCTOBER 28,2023
INTER CONFERENCE RMUTR
16-18 AUGUST 2023

The Schedule of the 4th RMUTR & 3rd RICE / Sus-LaB 4 International Conference
"Moving Towards Sustainable Development Goals"

16th August 2023

Time	Program
13.00-16.00	Onsite registration / Poster set-up for Poster Session

17th August 2023

Time	Program
08.00-09.00	Onsite and online registration / Poster set-up for Poster Session
09.00-10.30	Opening Ceremony, the 4th RMUTR & 3rd RICE / Sus-LaB 4 International Conference "Moving Towards Sustainable Development Goals" Keynote speaker: Mr.Teeraklat Jareonsettasin (M.D.) Former Chairman of President of Rajamangala University of Technology Council Former Minister of Ministry of Education (Thailand) "Impact of global change on the innovation and research development for sustainability"
10.30-11.00	Keynote speaker: Associate Professor Dr. Peeradej Thongampai Director, Knowledge Network Institute of Thailand "Improving research towards sustainable development in Thailand"
11.00-11.30	Keynote speaker: Dr.Illias Animon Forestry Officer, Food and Agriculture Organization of the United Nations: FAO "Landscape restoration and sustainable development"
11.30-12.00	LUNCH

The 4th RMUTR & 3rd RICE / Sus-LaB 4 International Conference
"Moving Towards Sustainable Development Goals"
August 16-18 2023

Time	Program		
	Integration of Science and Technology User1 ID; 869 262 4627 Passcode; 009977	Innovative Business Management and Entrepreneurship User2 ID; 565 021 3328 Passcode; 556677	Linguistics and Arts User3 ID; 891 993 0948 Passcode; 556677
Chairman	Assoc. Pro. Paiboolya Gavinlertvatana	Dr. Nutteera Phakdeephirot	Dr. Nuttapong Jotikasthira
Co-Chairman	Dr. Ilias Animon Dr. Kamlai Laohaphatanalert	Dr. Jiang Songyu	Assis. Pro. Dr. Jirawan Deeprasert
Host	Mr. Nutdanai Phuchong Miss Thanutpat Watchasit	Mr. Li Ming Mr.Sarakom Pattananonchai	Miss Valee Amatyakul Miss Nutta Yusamran
13.00-13.15	Session Speaker Microalgae Production by Using Wastewater for the Production of Biofertilizer and Biofuel: A Sustainable Bioresource **Prof. Dr. Alvina Farooqui (Onsite)** Professor and Head, Department of Bioengineering, Integral University Lucknow	Session Speaker SDGs and Innovation in the Business Context **Asso. Prof. Dr. Moiz Akhtar (Onsite)** Professor, Department of Commerce and Management, Integral University Lucknow	Session Speaker Reusing Industrial Waste in the Context of Arts and Designs **Professor Dr. Rahmanu Widayat (Online)** Interior Design, Faculty of Fine Art and Design, Universitas Sebelas Maret
13.15-13.20	Q&A		
13.20-13.35	Session Speaker Green IOT: A Sustainable approach **Dr. Kavita Agarwal (Online)** Head & Associate Professor, Department of Computer Science and Engineering, Integral University Lucknow	UID-026-85 Success Factors of Tourism Business in Nakhon Pathom Province Affecting Economic Growth and Sustainability According to the SDGs Concept **Nitinop Tongwassanasong (Online)**	UID-081-122 Strategic Adaptive Leadership Development of Administrators of Eastern Vocational Education Institutions toward Excellence: A Focus on Thailand's Vocational Education Management 4.0 Policy **Phongsak Phakamach (Onsite)**
13.35-13.40	Q&A		
13.40-13.55	UID-038-112 Energy Conservation Potential in Truck Body Assembly Line **Kittikun Posirisuk (Onsite)**	UID-025-86 An Analysis of Barriers for Microgrid Deployment: A Case Study of Mae Sariang, Mae Hon Song Province, Thailand **Bancha Yathip (Online)**	UID-060-123 The Effects of Quality System Management on Creating the Basic Education Schools as Innovative Organizations in Nonthaburi Province **Darunee Panjarattanakorn (Onsite)**
13.55-14.00	Q&A		

WORK PROGRESS 1/2566
OCTOBER 28,2023
INTER CONFERENCE RMUTR
16-18 AUGUST 2023

The 4th RMUTR & 3rd RICE / Sus-LaB 4 International Conference
"Moving Towards Sustainable Development Goals"

Rajamangala University of Technology Rattanakosin

CERTIFICATE OF ATTENDANCE

This is to certify that

Bancha Yathip, Parnuwat Usapein and Chakphed Madtharad

has presented for the entitle of

An Analysis of Barriers for Microgrid Deployment: A Case Study of Mae Sariang, Mae Hon Song Province, Thailand

The 4th RMUTR & 3rd RICE / Sus-LaB 4 International Conference

August 16 - 18, 2023

at Sammanakhan Chalerm Phrakiat King Rama IX Building

Rajamangala University of Technology Rattanakosin, Wang Klai Kangwon Campus

Hua-Hin District, Prachuap Khiri Khan Province, Thailand

C. udomvi

(Assoc.Prof.Dr.Udomvit Chaisakulkiet)

President of Rajamangala University of Technology Rattanakosin

ENERGY BOX
INTER CONFERENCE 29 AUGUST 2023
BANGKOK, THAILAND

ENERGY BOX
INTER CONFERENCE 29 AUGUST 2023
BANGKOK, THAILAND

WORK PROGRESS 1/2566
OCTOBER 28,2023
SEMINAR POWER & QUALITY
18-19 SEPTEMBER 2023

20th Annual PQSynergy™
International Conference & Exhibition 2022

Biography of Speaker

Name Bancha Yathip
Position Assistant Project Director
Company, country GUNKUL Engineering Public Co., LTD.

Bancha Yathip
Energy and Carbon Management, Engineering & Construction, Consultant Services served as Infrastructure, Smart City, Smart Grid, Microgrid, Virtual Power Plant(VPP), Smart Substation IEC61850,Submarine, Solar & Wind,
BESS

Yathip, B., & Usapein, P., Madtharad C. (2023). An Analysis of Barriers for Microgrid Deployment: A Case Study of Mae Sariang, Mae Hon Song Province, Thailand. RMUTR & RICE International Conference 2023. 16-18 August 2023.

GUNKUL
not only the energy, we care

Power Quality Thailand LTD.

Date: Tuesday August 22nd, 2023

Dear Khun Bancha Yathip,

Subject: Invitation and Call for Papers: 21st PQSynergy™ Annual International Conference and Exhibition 2023

Power Quality (Thailand) Co., Ltd. is pleased to invite you to join the 21st Annual PQSynergy™ International Conference and Exhibition on September 18th – 19th, 2023.

Venue: Movenpick Hotel Sukhumvit 15 Bangkok, Thailand

PQSynergy™ 2023 will be two days forum to share experiences, requirements, questions, information, customer requirements, problems and solutions in the fast growth area of Quality of Supply (QOS) requirements of sensitive loads, Energy Conservation and Management and Power Quality Monitoring and Solutions.

The event is an excellent networking opportunity in an informal atmosphere with presentations from around the world. Utilities will share their experiences, large power users will share their present and future expectations, and equipment suppliers will share their overall market perspective and their specific solutions for power quality problems.

On behalf of PQSynergy™, I have the pleasure of inviting you to submit the registration form and provide your topic of speech and prepare your presentation slides to the conference. The topic will be in the related field of Power Quality, Energy Efficiency, Solution for Power Quality Issue Technical Papers and a PQ Solution Workshop with PQ Expert Panel Discussion. One slot of topic will be 20 minutes for presenting and 10 minutes for questions and answers. Please be noted that the deadline of the registration will be on August 31st, 2023. Speakers will be deserved for:

- **Accompany to attend the conference**
- **No registration fee for both speaker and a company**
- **Logo and company name will be promoted in agenda published on www.pqsynergy.com**
- **Papers will be published on www.powerquality.blog**

A registration form is attached herewith for your information. You can also access the conference details at www.pqsynergy.com. Any queries related to the conference may please be directed to me at email: arreeratk@powerquality.co.th

Best regards,

Arreerat Kaewboophit
Conference Manager
PQSynergy™ 2023

PQSynergy Office

Power Quality (Thailand) Co., Ltd.
52/44 Moo 1, Soi Ramkamhaeng 90, Ramkamhaeng Rd., Sapansoong, Bangkok 10240, Thailand
Tel: + 66-2-3736340, Fax: +66-2-3732532, Email: arreeratk@powerquality.co.th
www.pqsynergy.com

POWER AND QUALITY
INTER CONFERENCE 18-19 SEPTEMBER 2023
MOVENPICK, BANGKOK, THAILAND

21st Annual PQSynergy™
International Conference & Exhibition
2023

SEP 18 – 19 @Movenpick Hotel
Sukhumvit 15 Bangkok—Thailand

AGENDA DAY 2: SEPTEMBER 19, 2023
Energy Efficiency/Electric Vehicles & Impact on the Quality of Supply from the Utility

08:00 - 08:50	Registration
08:50 - 09:00	Welcome Address

SESSION 1

09:00 - 09:40	Terry Chandler, Keynote Speaker *The Challenges Created by New High Power EV Charging Stations for Electric Utilities* Power Quality (Thailand)
09:40 - 10:20	Ph.D. Chakphed Madtharad *PEA ESS and Microgrid* PEA — Thailand
10:20 - 10:35	Coffee/Tea Break Exhibits Open

SESSION 2

10:35 - 11:15	Bancha Yathip *An Analysis of Barriers for Microgrid Deployment* Gunkul Engineering—Thailand
11:15 - 12:00	Robert James Stewart *How to Remotely Access Your Equipment Through a 4G Router* Power Quality (Thailand)
12:00 - 13:30	Lunch Break Exhibits Open

SESSION 3

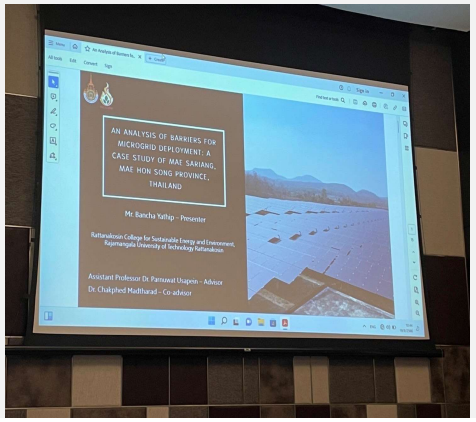
13:30 - 14:10	Peter Larsson *My Journey with Electric Cars: Exploring Incentives, Costs, Reliability, and Future Updates* USA
14:10 - 14:50	Terry Chandler *Electric Vehicle Charging Station Monitoring Capabilities, Benefits and Return on Investment (ROI)* Power Quality (Thailand)
14:50 - 15:05	Coffee/Tea Break Exhibits Open

SESSION 4

15:05 - 15:45	Kerk See Gim *Condition Monitoring and Substation Digitization* Power Automation— Singapore
15:45 - 16:25	Mallikarjuna Rampuram *Topic TBA* Atandra Energy—India
16:25 - 16:40	Closing Remarks, Brian Todd Dranetz/Electrotek—USA
16:40 - 16:55	Visit Exhibitors

Thank You for Participating our 21st Annual PQSynergy™ 2023

POWER AND QUALITY
INTER CONFERENCE 18-19 SEPTEMBER 2023
MOVENPICK, BANGKOK, THAILAND



THE SOLAR WEEK THAILAND
INTER CONFERENCE 30 NOVEMBER 2023
BANGKOK, THAILAND

SOLAR QUARTER

The Solar Week Thailand 2023
Date: 30 November, 2023
Time: 09:00 to 16:00 HRS (Indochina Time (UTC +7))
Venue: Bangkok, Thailand

09:00-10:00	**Registration & Networking Tea**
10:00- 10:10	Opening Remarks by Mr. Kulit Sombatsiri, Permanent Secretary, Ministry of Energy
10:10-10:20	Welcome Remarks Mr. Prasert Sinsukprasert, Director General, Department of Alternative Energy Development and Efficiency (DEDE)
10.20-10.30	Knowledge Presentation by Mr. Arkrapol Pichedvanichok, Senior Partner, Chandler MHM Limited
10:30 - 10:45	**Techno Commercial Presentation 1**
10:45 - 11:00	**Techno Commercial Presentation by Clenergy**
Session 1	**"Harnessing the Waves and the Grid: Navigating the Growth and Development of Floating and Utility Solar Energy in Thailand"**
11:00-12:00	**FIT scheme for utility-scale solar& battery energy storage:** What are the specific ways in which the FIT scheme for utility-scale solar and battery energy storage has stimulated the increase of solar capacity in the country? What have been the key learnings from FIT Scheme Phase 1 till now? **Roadmap for Floating Solar:** •How Thailand is planning to install floating solar projects of 2.73 GW by 2037 •How can a successful floating solar project be planned and executed in Thailand? **-Technology Innovation:** •What are the latest technological innovations in floating solar and utility-scale solar energy worldwide? •How can these innovations be effectively applied to projects in the Thailand? •Key considerations when selecting modules, inverters, and structures for such projects and their impact on overall performance. **Project Financing :** What are the main considerations when securing financing for such projects? **Project Planning and Execution:** •How can a successful floating solar or utility-scale solar project be planned and executed in Thailand? •What are the main challenges faced in implementing solar projects with energy storage and how can they be overcome? **Session Experts** **Mr. Franck Constant, Founder & CEO, Constant Energy** Ms. Khunchornyakong Wandee, CEO, SPCG Public Company Limited Mr. Cathleen Malennoni, ED, TSE Mr. Poonnavich Suppanich, Deputy Business Development Director, GreenYellow Thailand Mr. Rassa Herabat, Head of Asset Management and RE Project Manager, Investment Department, Prime Road Power Mr. Joseph Tomkiewicz, Partner-Tilleke & Gibbins, Co-Chair Energy Industry Team Senior Official, Solventia Solar
12:00-12:15	**Q & A for Session 1**
12:15 - 13:15	**Networking Lunch Break**

SOLAR QUARTER

The Solar Week Thailand 2023
Date: 30 November, 2023
Time: 09:00 to 16:00 HRS (Indochina Time (UTC +7))
Venue: Bangkok, Thailand

13:15-13:30	**Keynote Address by Mr. Prasertsak Chernghawano, Deputy Governor, Electricity Generating Authority of Thailand (EGAT)**
13:30-13:45	**Techno Commercial Presentation by Goodwe**
Session 2	**"Rooftop Revolution: Exploring the Growth and Development of Solar Energy in Thailand"**
13:45 - 14:45	**Overview and Market Potential:** Overview of the current rooftop solar market in Thailand Understanding the Third-Party Access Codes for Electricity Network Systems (the "TPA Codes"). How TPA will help the Thailand Solar Rooftop Market? **Technological Advancements and Innovations:** Technological advancements in rooftop solar systems, including module and inverter technologies. Energy storage and monitoring systems for optimizing rooftop solar performance. The role of digitalization in driving progress and innovation. **Procurement Strategies and Best Practices:** Best practices for procuring rooftop solar systems, including module and inverter selection. Financing options for rooftop solar projects. Selecting the right Engineering, Procurement, and Construction (EPC) partners **Case Studies and Lessons Learned:** Successful rooftop solar projects in the Thailand Key success factors, lessons learned, and best practices from these projects. **Challenges, Opportunities, and Bottlenecks:** Challenges faced by the rooftop solar industry in Thailand Bottlenecks and obstacles to widespread adoption of rooftop solar **Closing Remarks and Recommendations:** Key takeaways from the panel discussion. Recommendations for driving progress, innovation, and widespread adoption of rooftop solar in Thailand **Session Experts** Mr. Somboon Lertsuwannarog, CEO, Impact Solar Mr. Bancha Yathip, Assistant Project Director, Gunkul Engineering Public Company Limited Mr. Chayasak Ittihisiri, General Manager, BECIS - Commercial Industrial Solutions Mr. Chris Starling, Partner, The Lantau Group Mr. Khomson Khenyotha, Thailand Sale Director, Total Energies Mr. Fabien Chedefaux, Country Head(Thailand), LYS Energy Senior Official, Cleanmax
14:45 - 15:00	**Q & A for Session 2**
15:00 - 16.00	**The Solar Week Thailand Leadership Awards**
16.00 Onwards	**Networking Tea & End Of The Day**

Microgrid in Thailand

OPINION

ECONOMIC AND ENVIRONMENTAL POLICY ANALYSIS FOR
MICROGRID DEPLOYMENT IN THAILAND

THE FIRST PILOT PROJECT IN THAILAND

Microgrid Project at Mae Sariang District, Mae Hong Son Province with the Provincial Electricity Authority. Total 132.9 million baht in project management duration 400 days. The project is considered the company's renewable energy business in terms of sustainable energy management.

The important benefit of the Microgrid Project is to increase the reliability and stability of the electrical system. In case of the main power grids system failure, the micro-grid system can release itself independently. It can be utilized as the source of electricity from other sources to replace the loss of electrical energy from the main distribution system or energy storage systems. The system can determine power quality, electrical stability, and electricity reliability as well.

THAILAND'S MICROGRID PLANS TAKE SHAPE

We have a microgrid pilot project which has been operating in Thailand, marking the first success of a national microgrid policy introduced in 2018.

This got Commissioned in March and the project served the energy which was needed for some 5,000 houses or around 50,000 people in the mountainous Maehongson Province in northern Thailand.We developed the project called Microgrid Development Plan, PEA was selected to take the lead on building the Maesariang project. PEA wants to develop the pilot project in Maesariang because this is the area most often affected by outages in Thailand. The main problem is frequent outages where the power line falls or is broken because of flooding, landslides or some other event.

This microgrid project aims to address this reliability issue while the wider Microgrid Development Plan is designed to replace operating generation to respond to power demand growth, reduce distribution losses and overcome constraints in the development of new transmission lines, support growth in renewables, and bolster the development of smart grid technology across the PEA network.

A second microgrid project is also being constructed by us as part of PEA's network plans. Set to be developed in BeTong in southern Thailand near the Malaysian border, this 10 MW project comprises a 4 MW battery, 3 MW of solar PV and 5 MW of diesel generation capacity.

The economics here are positive as energy consumption is in high demand and BeTong recently announced an expansion of the airport, for example. Further growth is anticipated in the future with opportunities also for export into Malaysia and Singapore as well as use in Thailand

Because of the Thai government policy, there are opportunities for many microgrids to be developed in the country.

The Provincial Electricity Authority (PEA) is responsible for providing electric power and related services and covers the vast majority of Thailand. Under the auspices of Thailand's Microgrid Development Plan, PEA was selected to take the lead

BANCHA YATHIP
ASSISTANT PROJECT DIRECTOR, GUNKUL ENGINEERING PUBLIC COMPANY LIMITED

SOLARQUARTER | ASEAN

DEC-JAN ISSUE 2022 | PG 23

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EGAT, CONSTANT ENERGY, BECIS, SCB, energy, PRIME, TotalEnergies, SANIX, AFRY, CHUBB, GUNKUL, SCG, JUWI, WIND ENERGY HOLDING, GREENERGY, Lucy Electric, SCG CLEANERGY, VnetPower, INNOPOWER

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SOLAR QUARTER SOUTH EAST ASIA

Bangkok, Thailand
30TH November 2023

THE SOLAR WEEK 2023 THAILAND

MEET OUR SPEAKER

BANCHA YATHIP
Assistant Project Director
Gunkul Engineering Public Company Limited

PLATINUM PARTNER
CLENERGY

ONSITE BRANDING PARTNER
GOODWE

Bancha Yathip is a highly accomplished professional with over three decades of diverse experience in Project and Construction Management, encompassing a wide spectrum of fields including

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Meet our Speakers

Franck Constant
Founder and CEO
Constant Energy

Stephane Dufrenne
Chief Commercial & Partnership Officer
GreenYellow Thailand

Bancha Yathip
Assistant Project Director
Gunkul Engineering Public Company Limited

Rassa Herabat
Head of Asset Management and RE Project Manager, Investment Department
Prime Road Power

Somesh Shah

Kij Nimsawang

Pisal Y

Milan Koev