



Thai Solar Energy Public Company Limited

TSE PRESENTATION 1Q2022

(AS OF MAY 2022)

DISCLAIMER

The information contained in this presentation is provided by **Thai Solar Energy Public Company Limited (“TSE”)** solely for information purposes.

This presentation does not constitute or form part of any offer or invitation by or on behalf of TSE for sale or subscription of or solicitation or invitation of any offer to or recommendation to buy or subscribe for any securities of TSE, nor shall it or any part of it form the basis of or be relied on in connection with any contract, commitment or investment decision in relation thereto (“Securities”) in Thailand, the United States or any other jurisdiction.

The information contained herein does not take into consideration the investment objectives, financial situation or particular needs of any particular investor, and should not be treated as giving investment advice.



AGENDA

1. COMPANY OVERVIEW
2. FINANCIAL HIGHLIGHTS OF 1Q2022
3. OUTLOOK
4. APPENDIX

VISION and MISSION

VISION

To become a world-class regional leader in providing renewable energy through reliable technologies to serve both commercial and social societies.

MISSION

To establish a solid footprint in Thailand in the solar power industry and expand into other renewable energies as well as developing an international solar power business focusing in Asia & Oceania regions.

1.

COMPANY OVERVIEW

Summary of Corporate Information



COMPANY OVERVIEW

Thai Solar Energy Public Company Limited (“TSE”) was established in 2008 with a mission to establish a solid footprint in Thailand in the solar power industry and expand into other renewable energies as well as developing an international solar power business focusing in Asia and Oceania regions.

COMPANY OVERVIEW

2 CORE BUSINESSES

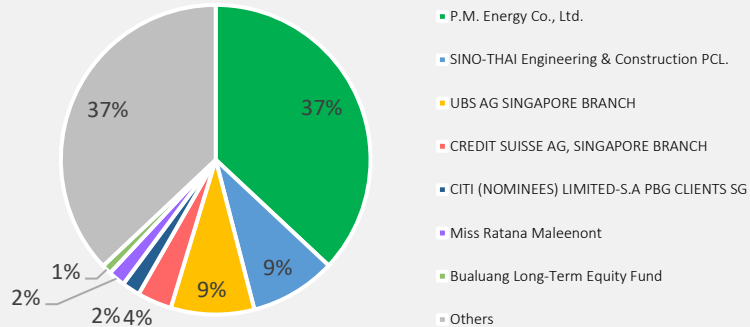
Solar PV



Biomass



TSE Major Shareholders RD 10 MARCH 2022



Listed in:

MAI on October 30, 2014



Moved to SET since May 14, 2019



Paid up Capital:

THB 2,117 million

Sector:

Energy & Utilities

Industry:

Resources

CG Rating:





Credit Rating:

BBB- stable

MILESTONES

2008 – 2014

Solar Farms +
Rooftops (TH)

- 2008:** > Established TSE 
- 2011:** > Majority owned by Dr. Cathleen Maleenont
> COD Solar Thermal (4.5 MW)
- 2013:** > COD Solar PV TH 5 projects* (40 MW)
*Partnership with GPSC (TSE 60%) 

- 2014:** > **Listed in MAI on 30 OCT 2014**
- > COD Solar PV TH 5 projects* (40 MW)
*Partnership with GPSC (TSE 60%)
> COD Solar Rooftop 5 Projects (5 MW)



2015 – 2017


Solar Farms (JP) +
Biomass (TH)

- 2015:** > **Expanded TSE's business operation in Japan** ●
- > COD Solar PV JP 1 project (0.5 MW)
> COD Solar Rooftop 9 projects (9 MW)
- 2016:** > COD Solar PV "SLC" 1 project (1 MW)
> COD Solar PV JP 4 projects (6.49 MW)
> **Invested in Biomass 3 projects**
- 2017:** > **Large Investment in Japan "Onikoube" project (147 MWp)** ●



2018 – 2019

Merger & Acquisition

- 2018:** > COD Biomass 3 projects (22.2 MW)
> COD Solar PV JP: Jyoso (1.25 MW)
> **Acquired** a new project "INS" in Ang Thong province (2.0 MW) in OCT 2018
- 2019:** > COD Solar PV JP: Hanamizuki (13.5 MW)
> Fully Operate Biomass 3 projects (22.2 MW) 
- > **Moved to SET on 14 MAY 2019**
- > Capital Increase to 2,117.7 MB. completely in OCT 2019.
Note: TSR 212 million shares
Total 530 MB.
- > **Acquired:**
1. "BSS" in Ayutthaya province (5 MW) in MAR 2019
 2. "BSE" in Udonrthani province (5 MW) in AUG 2019
 3. "SSP" in Ang Thong province (8 MW) in NOV 2019

2020 – 2021

Private PPA

- 2020:** > Start project "Onikoube" Construction and receive project loan from BBL
> **Invested in a Floating Solar PV farm project in Prachinburi province (8.0 MW) in JUN 2020**
- > Acquired: "EES" in Krabi province (5.0 MW) in JUL 2020
> Disposed: "BSE" in Udonrthani province (5.0 MW) in SEP 2020
- 2021** > **COD Floating Solar PV project (8 MWp) since 25 May 2021**
> Disposed investment in 6 small Solar Farms in Japan (totaling 8.24 MW) in SEP 2021



2022 – onward

Exploring Investment
Opportunity overseas
+ Expanding Private PPA

- 2022:** > Divested in a solar farm "Hanamizuki" 13.5 MW in Japan in MAR 2022
> SCOD "Onikoube" project (147 MWp) 4Q2022



Ref. photo of
"Onikoube" project

BOARD OF DIRECTORS



Dr. Prommin Lertsuridej

Vice Chairman, Chairman of Nomination and Remuneration Committee, and Independent Director



Mr. Pala Sookawesh

Independent Director



Mr. Prasert Patradhilok

Independent Director and Chairman of Audit Committee



Mr. Aran Apichari

Independent Director



Mr. Somphop Prompanapitak

Director



Mrs. Angkaneer Rerksirisuk

Director



Mr. Masthawin Charnvirakul

Director



Cathleen Maleenont, Ed.D.

Chairman of Board of Directors

AUDIT COMMITTEE



Mr. Prasert Patradhilok

Chairman of Audit Committee and Independent Director



Mr. Pala Sookawesh

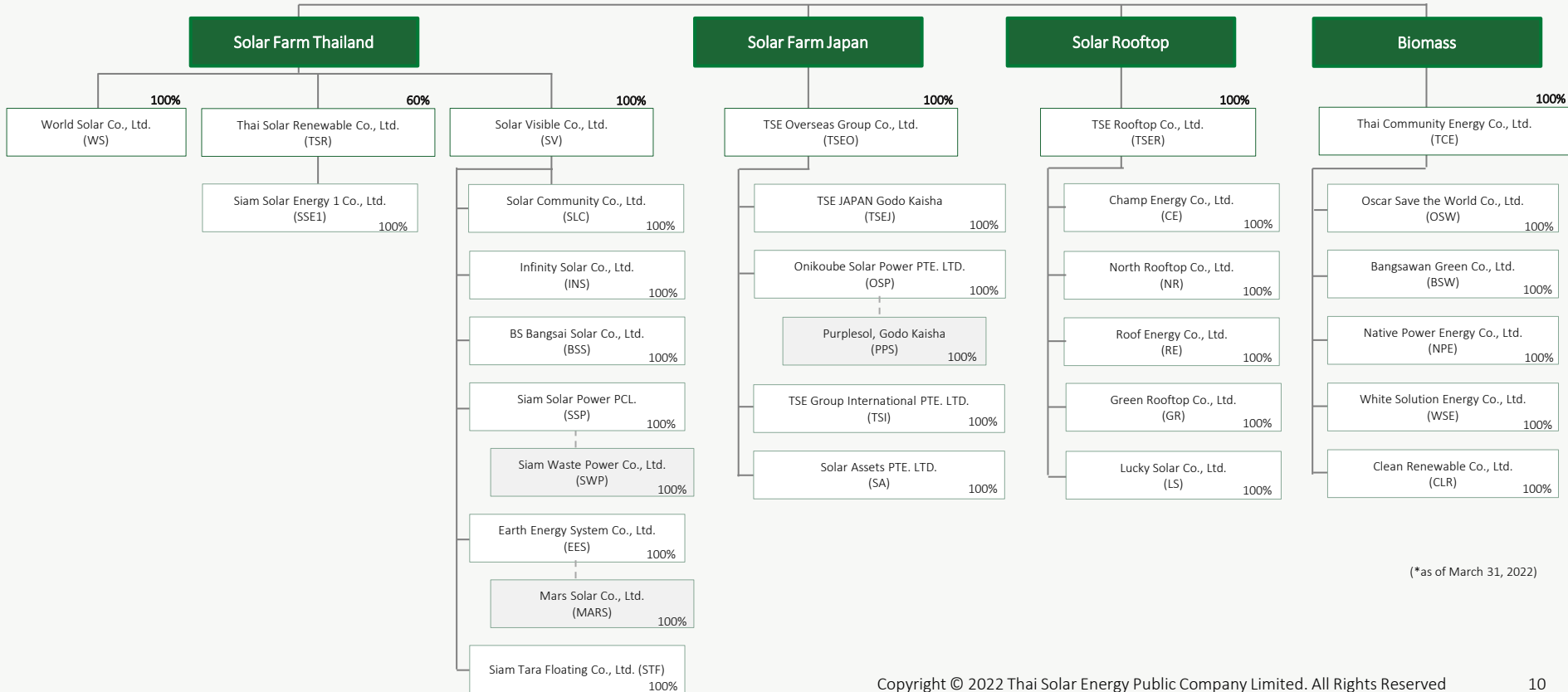
Member of Audit Committee and Independent Director



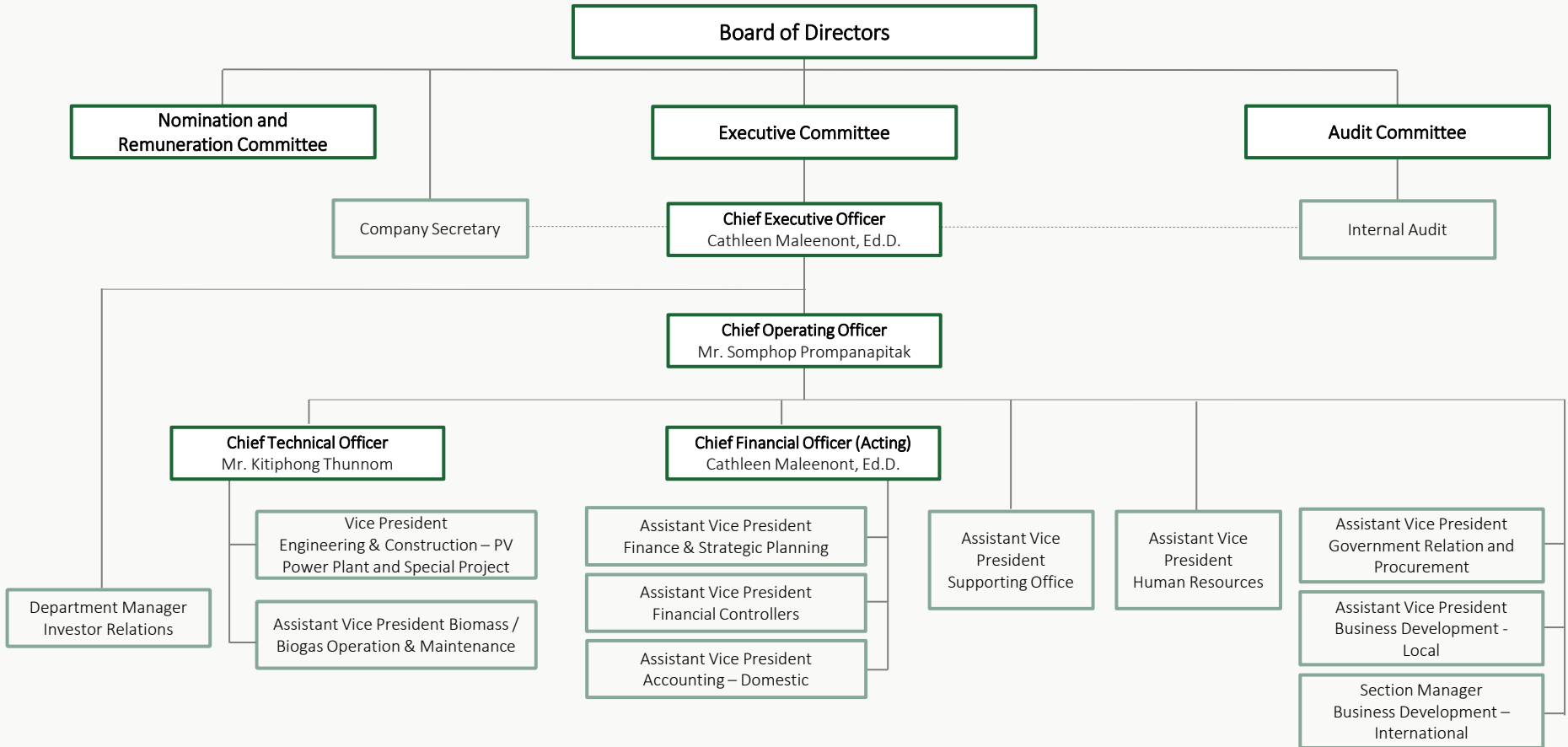
Dr. Praphan Subsang

Member of Audit Committee and Independent Director

COMPANY STRUCTURE

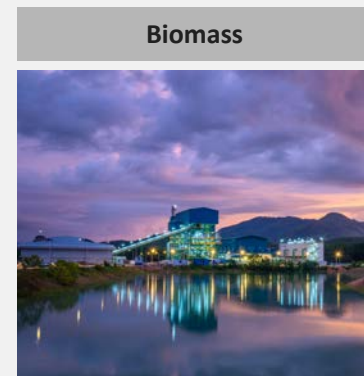
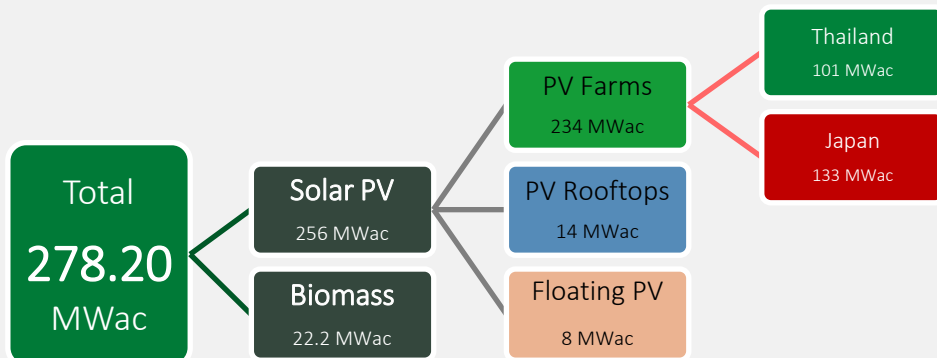
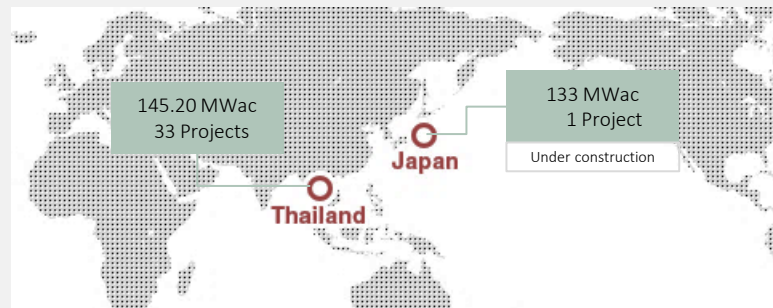
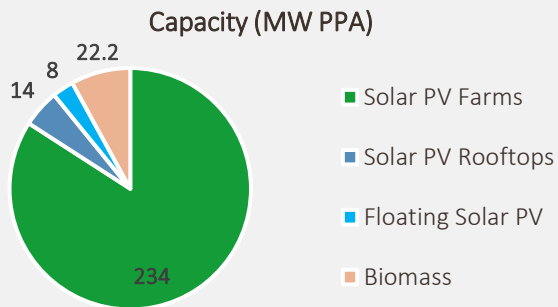


ORGANIZATION STRUCTURE



CORE BUSINESS

TSE and its subsidiaries (“the Group”) The Group’s core businesses are generation and distribution of electricity from solar power and biomass to government and private company in Thailand and Japan.



2.

FINANCIAL HIGHLIGHTS OF 1Q2022

Summary of TSE's Financial Performance

HIGHLIGHTS OF 1Q2022



100% divestment of "Hanamizuki" with a total contract capacity of 13.5 MW (a total installed capacity of 18.1 MW) in Japan.

The total enterprise value was **JP¥ 2,101 million** or approximately **THB 603 million**.

INCOME STATEMENT 1Q2022

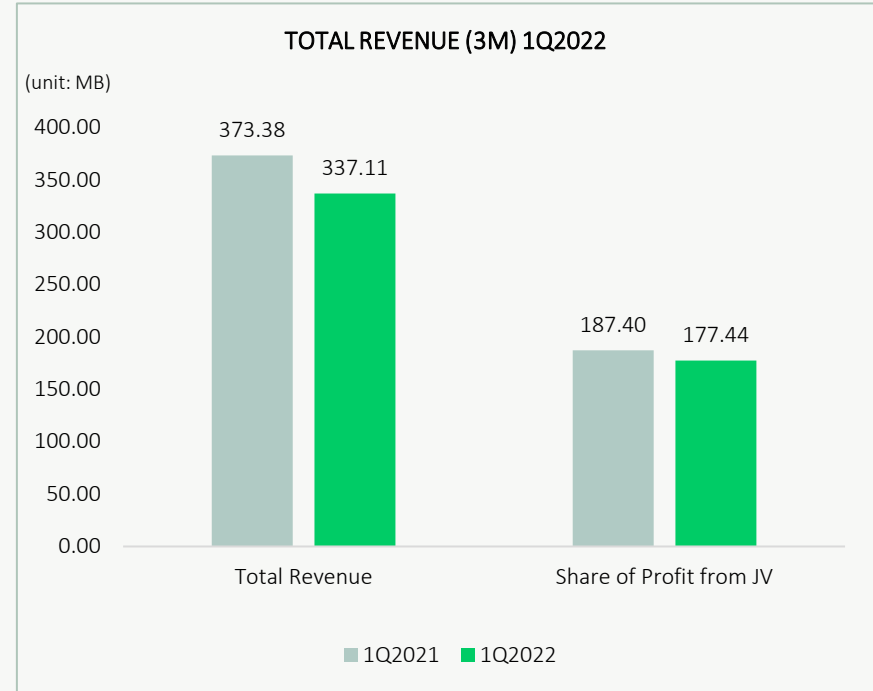
Statement of Comprehensive Income	Consolidated (Unit: Thousand Baht)		
	1Q2022	1Q2021	% Change
Revenue			
Electricity Sales	322.71	359.47	-10.23%
Management Fee	12.53	11.93	5%
Total Revenue	335.24	371.40	-9.74%
COGs	(231.52)	(269.81)	-14%
Gross Profit	103.73	101.60	2%
Other Income	1.87	1.98	-5%
Administrative Expenses	(77.78)	(47.45)	64%
Other gains (losses)	215.14	43.91	390%
Finance costs	(78.30)	(84.69)	-8%
Share of Profit from joint ventures	177.44	187.40	-5%
Profit before Income Tax	342.10	202.74	69%
Income Tax	(3.15)	(0.22)	1353%
Net Profit from Operation	338.94	202.53	67%
Currency translation differences	(353.66)	(142.66)	148%
Change in fair value of hedging derivatives		11.37	100%
Total Comprehensive Income	(14.72)	71.23	-121%
Profit Attributable to:			
Owners of the Parent	338.94	202.57	67%
Non-Controlling Interests		(0.04)	-100%
	338.94	202.53	67%
Total Comprehensive Income Attributable to:			
Owners of the Parent	(14.72)	71.29	-121%
Non-Controlling Interests		(0.05)	-100%
	(14.72)	71.23	-121%

TOTAL REVENUE

- Total Revenue in 1Q2022 decreased to 337.11 MB or -9.71% as compared to 1Q2021 of 373.38 MB. This was mainly due to disposal of investment in 7 Solar PV Farm projects (totaling 21.74 MW) in Japan since 3Q2021 (6 projects) and 1Q2022 (1 project). In the meantime, the Company has revenue increased from a Floating Solar PV project in Prachinburi Province, Thailand which started to COD since May, 2021.

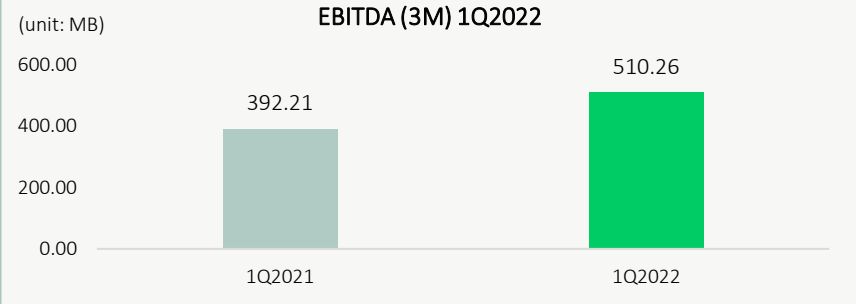
SHARE OF PROFIT FROM JV

- Share of profit from JV in 1Q2022 decreasing to 177.44 MB or -5.32% as compared to 1Q2021 of 187.40 MB. This was due to increase in corporate income tax of the projects that gradually expired tax privileges from the Board of Investment under investment promotion certificates.



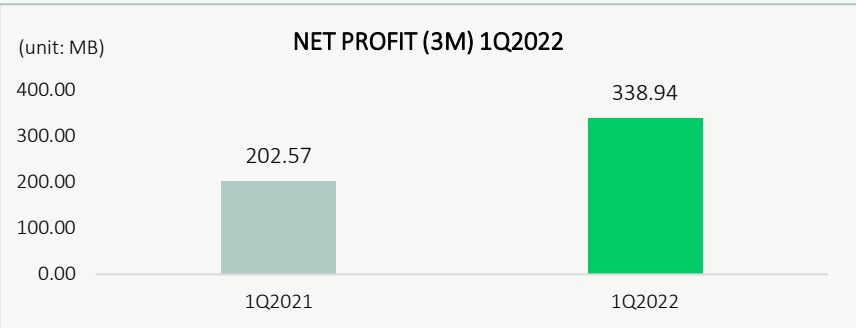
EBITDA

- EBITDA in 1Q2022 increased to 510.26 MB or +30.10% as compared to 1Q2021 of 392.21 MB. This was due to an increase in the other gains of divestment in 13.5 MW Solar PV Farm project (“Hanamizuki”) in Japan and a decrease in Finance Costs.



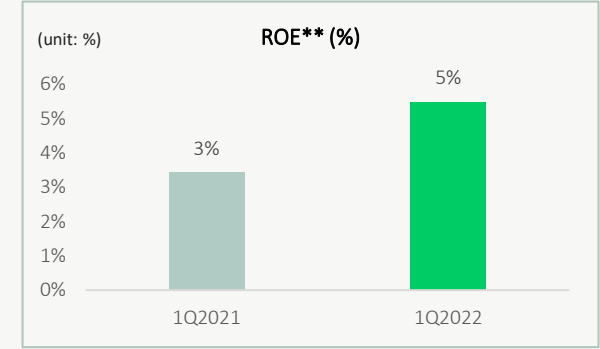
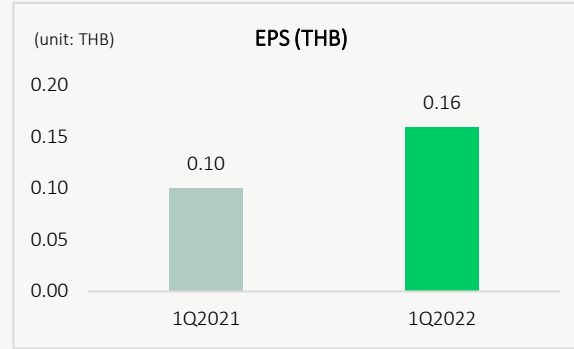
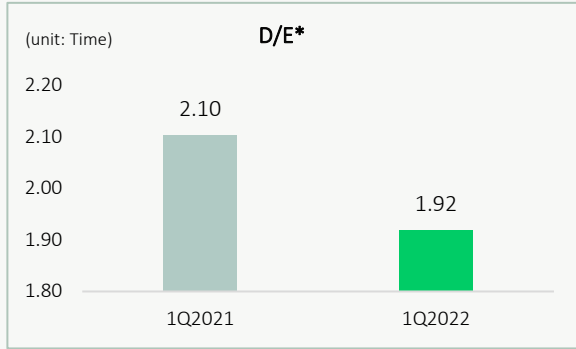
NET PROFIT

- Net Profit attributable to owners of the parent in 1Q2022 significantly increased to 338.94 MB or +67.33% as compared to 1Q2021 of 202.57 MB. This was mainly due to the gains from disposal of investment in 13.5 MW Solar PV Farm project (“Hanamizuki”) in Japan amounting to 234.44 MB.



Note: *Equity attributable to owners of the parent
** Average Equities

D/E RATIO, EPS, and ROE 1Q2022



D/E* RATIO

- D/E* Ratio in 1Q2022 decreased to 1.92 times or -8.74% as compared to 1Q2021 of 2.10 times. This was mainly due to a decrease in liabilities from divestment in 7 Solar PV Farm projects in Japan. Besides, Equities in 1Q2022 was increased due to the increase in the other gains.

EPS

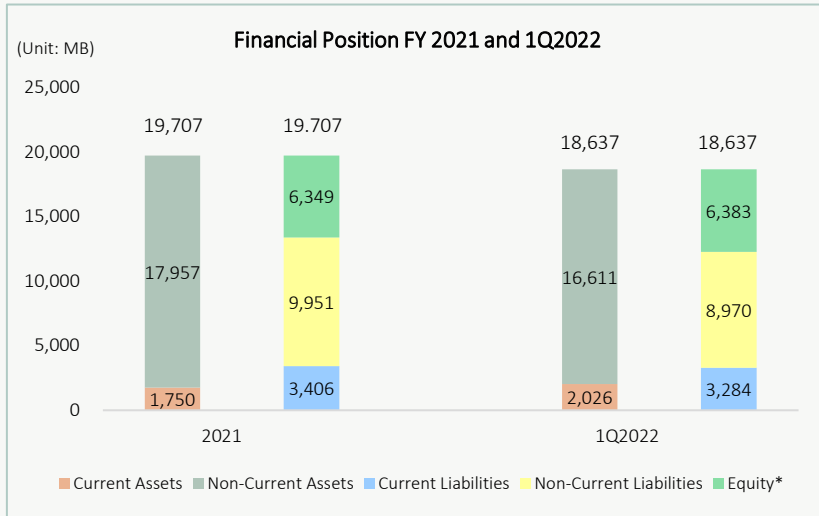
- EPS in 1Q2022 increased to 0.16 Baht or +60% as compared to 1Q2021 of 0.10 Baht. This was also primarily due to the other gains from disposal of investment in 13.5 MW Solar PV Farm project (“Hanamizuki”) in Japan amounting to 234.44 MB.

ROE**

- ROE in 1Q2022 increased to 5% or +59.61% as compared to 1Q2021 of 3%. This was due to the same reason of the other gains from divestment in 13.5 MW Solar PV Farm in Japan.

Note: *Equity attributable to owners of the parent
** Average Equities

FINANCIAL POSITION 1Q2022



FINANCIAL POSITION	FY2021	1Q2022	+/- (%)
Assets	19,707	18,637	-5%
Liabilities	13,358	12,254	-8%
Equities*	6,349	6,383	1%
D/E* Ratio (times)	2.10	1.92	-9%

Note:

*Equity attributable to owners of the parent

FINANCIAL POSITION

- **Total Assets:**

Decreasing from 19,707 MB to 18,637 MB, or -5%.

- **Total Liabilities:**

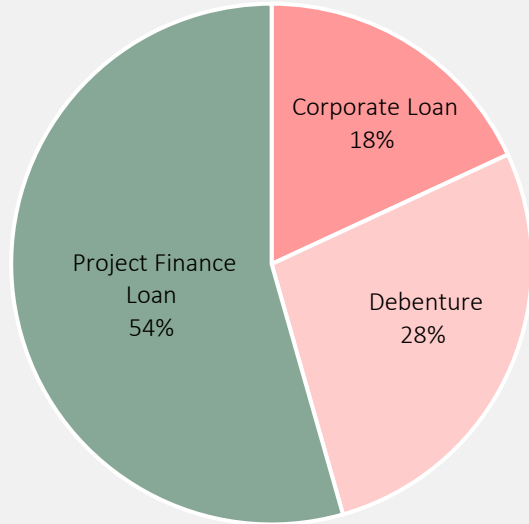
Decreasing from 13,358 MB to 12,254 MB, or -8%.

- **Equity Attributable to owners of the parent:**

Increasing from 6,349 MB to 6,383 MB or +1%.

- At the end of 1Q2022, Total Assets and Total Liabilities were decreased due to divestment of 7 Solar PV Farm projects since 3Q2021 (6 projects) and in 1Q2022 (1 project) in Japan. Whereas, the Equity Attributable to owners of the parent increased as a result of an increase Net Profit that the Company recognized the other gains from the divestment of 13.5 MW Solar PV Farm in Japan in 1Q2022.

DEBT STRUCTURE 1Q2022



■ Corporate Loan ■ Debenture ■ Project Finance Loan

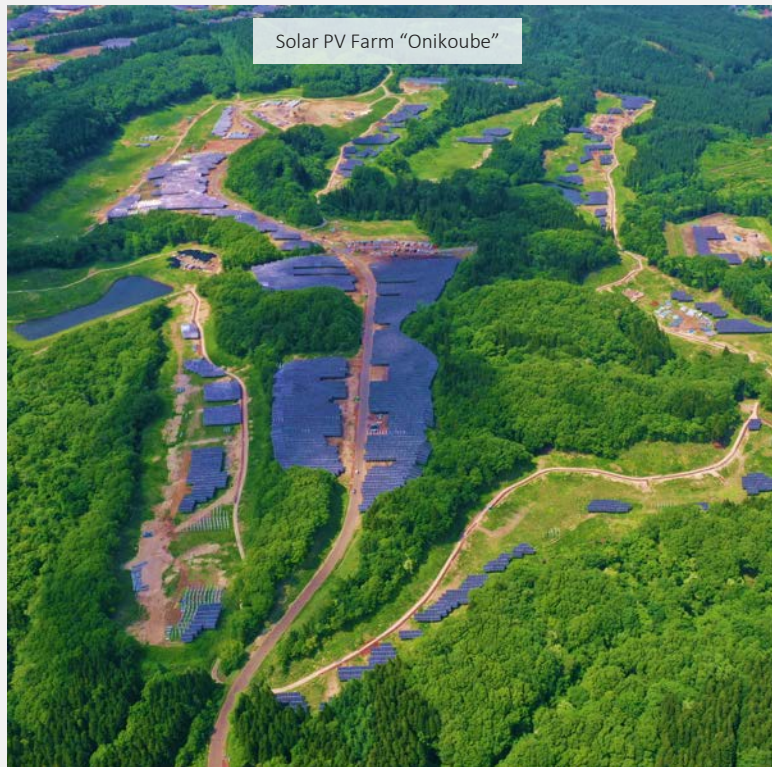
SUMMARY

Most of interest bearing debt from Project Finance Loan for 54%, increased from Onikoube Project Finance Loan drawdown.

28% of Project Finance Loan from COD projects decreased accordingly from schedule repayment.

The remaining interest bearing debt from Corporate Loan and Debenture for 46% decreased from schedule repayment.

PROJECT UPDATE






Purchase Rate - FiT 36 JP¥

Summary of "Onikoube" Project

Installed Capacity (MWp):	147
Selling Capacity (MWac):	133
Purchase Rate (FiT JP¥):	36
Location:	Miyagi Province, Japan
Off-taker:	Tohoku Utility
SCOD:	4Q2022
Status:	Under construction
Operated by:	OSP
Start Project Construction:	In April, 2020

Project Components

EPC by:	TOSHIBA	
PV Module by:	Trina Solar	
Inverter by:	Huawei	

Financing

Project Finance by:	BBL (THB 8.6 bn.)
---------------------	-------------------

CONSTRUCTION UPDATE



Overall module installation completed more than 50%. Microwave tower and grid tower erection has been completed, but equipment installation to be proceeded in later stage.

In the snow season, construction work has been suspended. EPC could only do minor cable wiring work hence the progress in the past three months was slow. EPC resumes work in spring, focusing on module installation. The construction of OM site office has been started as well.

3.

OUTLOOK

Summary of TSE's Business Outlook
And Investment Plan



THAILAND

- Acquiring New Projects
- Penetrating Private PPA in Solar PV Farms
- Expanding into Waste to Energy



Totalling approx. 50 MW PPA

OVERSEAS

- Exploring new opportunities in renewable energy projects (i.e. Wind and Solar Farms) overseas

Totalling approx. 50 – 100 MW PPA

Total approx.
100 – 200 MW*
within the next 5 years



Note: *The plan is subject to change depending on various factors.

4.

APPENDIX

Summary of TSE's Projects

TSE's PROJECTS

TOTAL
278.20 MWac
34 Projects



(As of 31 March, 2022)

Note: *101 MW (69 MWe) > 10 projects - Partnership with GPSC (TSE 60%)

** 278.20 MW > 33 projects (145.20 MWac) are in operation.
> 1 project (133 MWac) is under construction.

Solar PV Farms

101 MWac – 15 Farms
8 MWac – 1 Floating

Solar PV Rooftops

14 MWac – 14 Rooftops

Biomass

22.2 MWac – 3 Plants

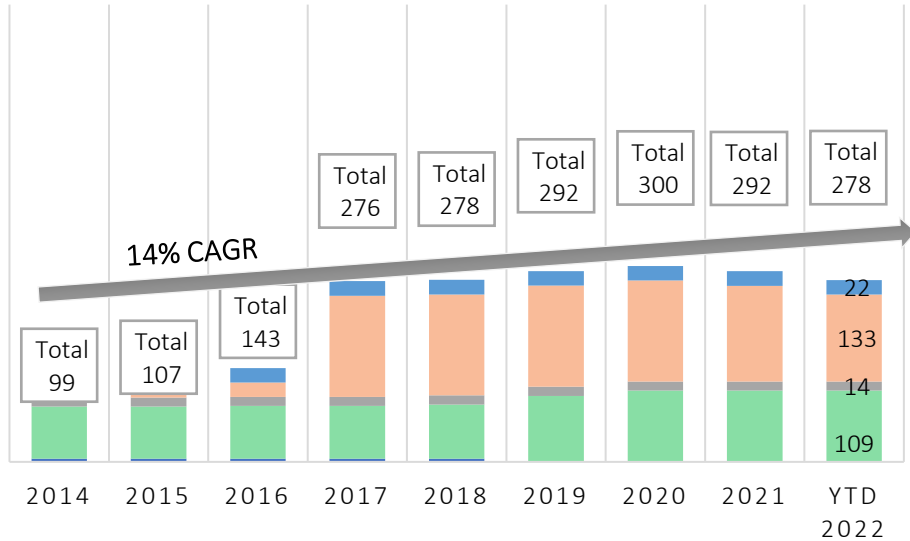
Solar PV Farm

133 MWac – 1 Farm
(under construction)

CAPACITY GROWTH

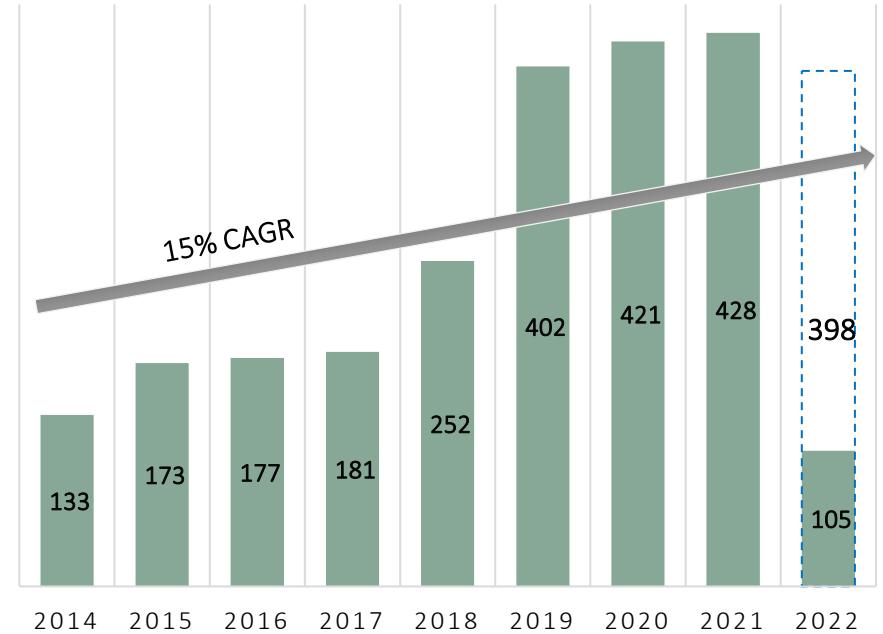
ACQUIRE CAPACITY (MW PPA)

- Thermal
- Solar Farms
- Solar Rooftops
- Japan Solar Farms
- Biomass
- Total

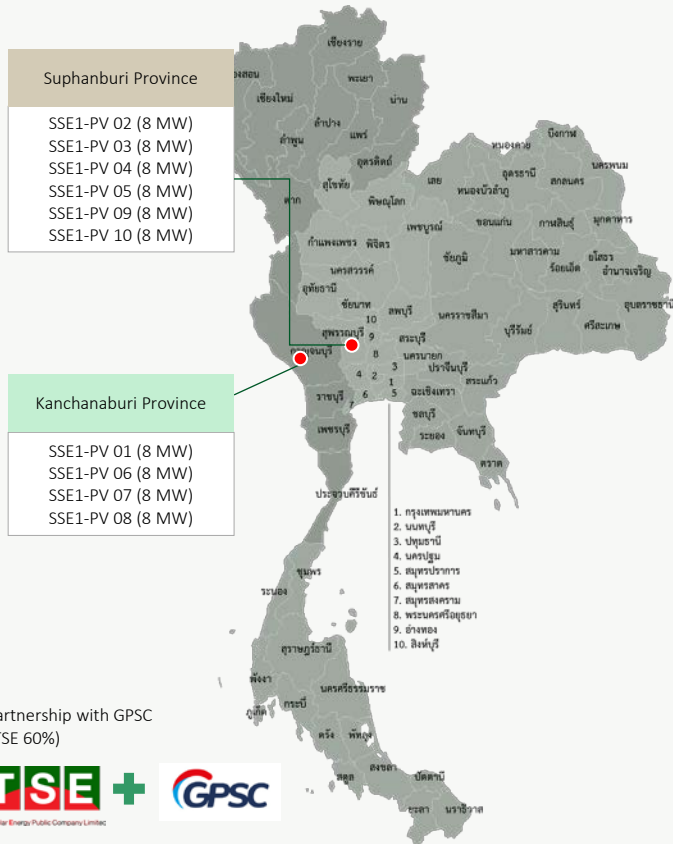


POWER OUTPUT PRODUCTION (MIL KWH)

- Actual
- Forecast



SOLAR PV FARMS (THAILAND) : 10 Projects (80 MWac) with GPSC



Note: Partnership with GPSC (TSE 60%)



Adder 6.5 THB/ kWh
(SSE1: PV01 – PV10)

SSE1-PV02 (8MW)
COD JUL 2013

SSE1-PV03 (8MW)
COD OCT 2013

SSE1-PV01 (8MW)
COD SEP 2013

SSE1-PV04 (8MW)
COD NOV 2013

SSE1-PV05 (8MW)
COD NOV 2013

SSE1-PV06 (8MW)
COD JUN 2014

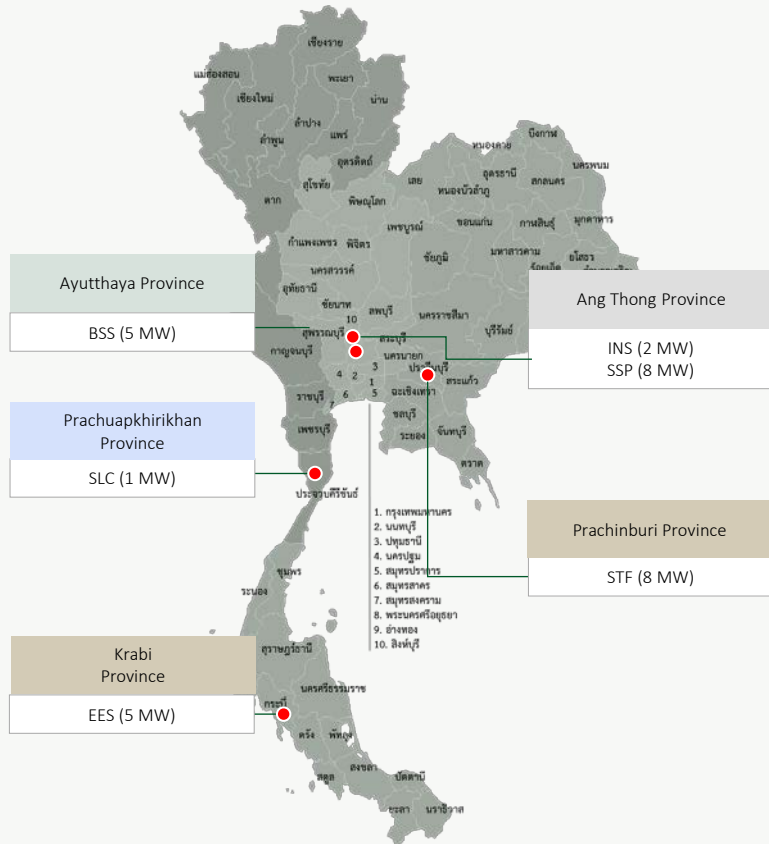
SSE1-PV07 (8MW)
COD MAR 2014

SSE1-PV08 (8MW)
COD JUN 2014

SSE1-PV09 (8MW)
COD APR 2014

SSE1-PV10 (8MW)
COD MAY 2014

SOLAR PV FARMS (THAILAND) : 6 Projects (29 MWac)



FiT
5.66
THB/ kWh



SLC (1MW)
COD DEC 2016



INS (2MW)
COD DEC 2015

FiT
4.12
THB/ kWh



BSS (5MW)
COD DEC 2016



EES (5 MW)
COD DEC 2018

Adder
8 THB/ kWh



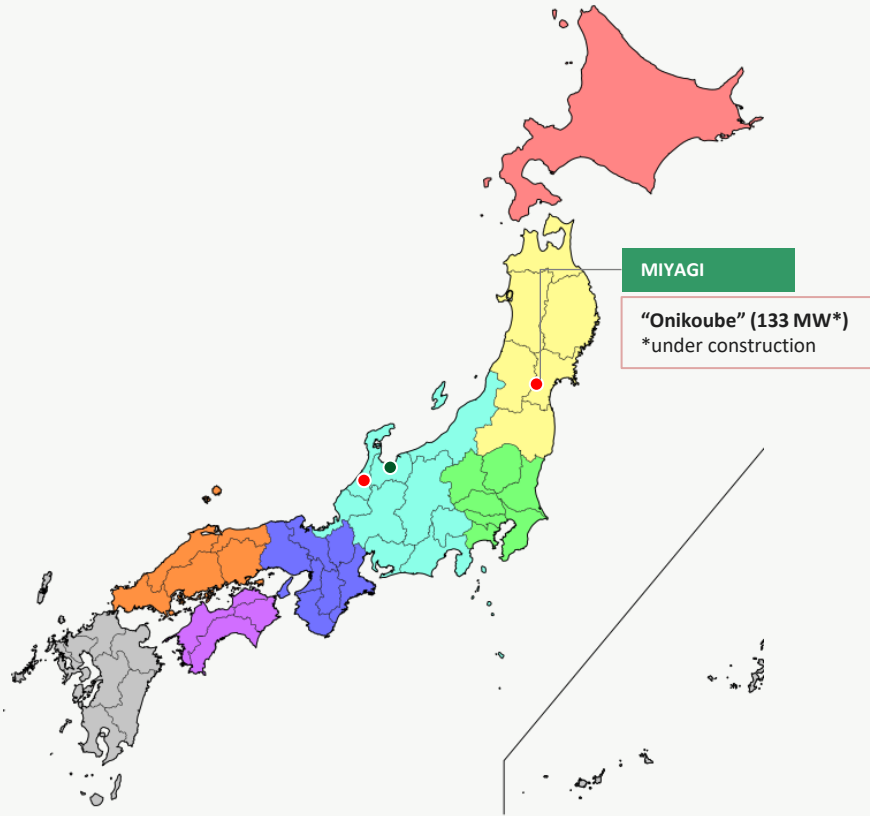
SSP (8MW)
COD MAR 2013

Private PPA

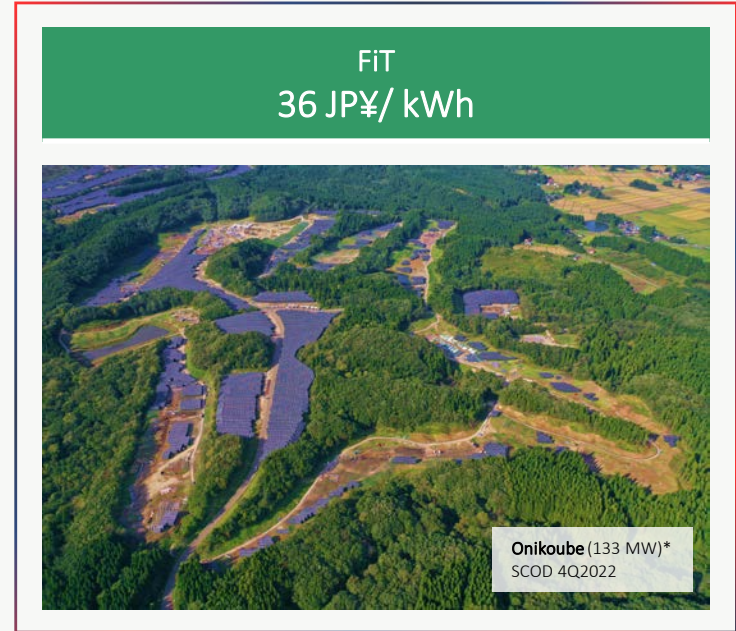


Floating Solar PV Farm (8MW)
COD MAY 2021

SOLAR PV FARMS (JAPAN) : 1 Project (133 MWac)



As of March 31, 2022



FIT
36 JP¥/ kWh

Onikoube (133 MW)*
SCOD 4Q2022

FLOATING SOLAR PV FARM (THAILAND) : 8 MWac



Private PPA 25 Years

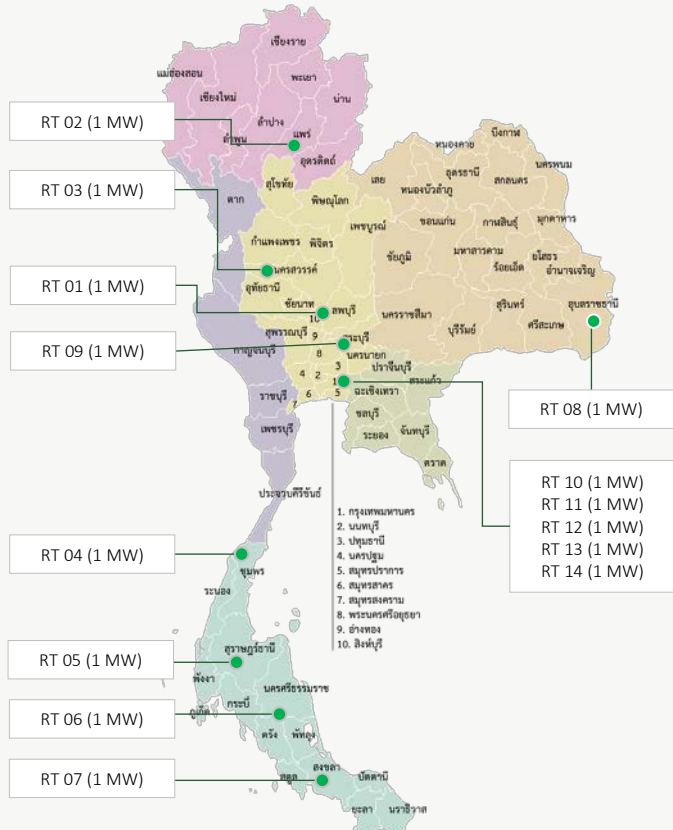
Summary of "Siam Tara Floating" 8 MWp Project

Installed Capacity (MWp):	8
Selling Capacity (MWac):	8
PPA Type:	Private PPA
PPA Period:	25 years
Location:	Kabinburi Industrial Zone (KIZ), in Prachinburi Province
Off-Taker:	Arcelik Hitachi Home Appliances (Thailand) Ltd.
COD:	25 MAY 2021
Operated By:	SV (TSE's subsidiary)
Investment:	June, 2020

Project Components

PV Module by:	Trina Solar	
Floating material and Mounting structure:	SCG Thailand	
Inverter by:	String type - Huawei	
Electrical apparatus:	Switchgear - Siemens, Transformer – Ekarat	

SOLAR PV ROOFTOPS (THAILAND): 14 Projects (14 MWac)



FIT
6.16 THB/
kWh



RT-01 Lopburi
COD SEP 2014



RT-02 Phrae
COD FEB 2015



RT-03 Nakorn Sawan
COD JUN 2015



RT-04 Chumphon
COD SEP 2014



RT-05 Surat Thani
COD DEC 2014



RT-06 Nakhon Si
Thammarat
COD JUL 2015



RT-07 Hat Yai
COD OCT 2015



RT-08 Ubon
Ratchathane
COD MAR 2015



RT-09 Khao Yai
COD NOV 2014



RT-10 Ekamai-Ramindra
COD FEB 2015



RT-11 Ratchapruek
COD NOV 2014



RT-12 Thapra
COD JUL 2015



RT-13 Bangkok
COD JUL 2015

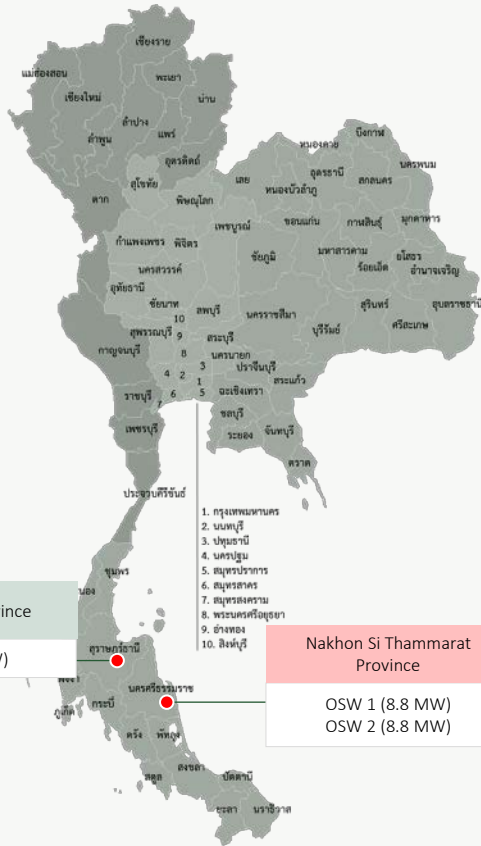


RT-14 Ngamwongwan
COD AUG 2015

Note: Partnership with
The Mall + HomePro



BIOMASS (THAILAND): 3 Projects (22.2 MWac)



Surat Thani Province
BSW (4.6 MW)

Nakhon Si Thammarat Province
OSW 1 (8.8 MW)
OSW 2 (8.8 MW)

FIT
4.24 Baht +
Premium 0.30 THB
(8 years)





Thai Solar Energy Public Company Limited

THANK YOU

MAY, 2022