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Energy Regulatory Commission  
Office of the Energy Regulatory Commission

Session III:

MOBILISING GREEN FINANCE

# UOB Sustainable Finance – Renewable Energy Case Study

**Panitra Vejjajiva**

United Overseas Bank (Thai) Public Company Limited

● Energy ● Built environment

### Net zero targets and commitments for six sectors



#### Power

Reduce emissions intensity by **64%** by **2030**, and **98%** by **2050**



#### Automotive

Reduce emissions intensity by **58%** by **2030**, and **net zero** by **2050**



#### Oil & Gas

No new project financing for upstream oil and gas projects approved for development after **2022**



#### Real estate

Reduce emissions intensity by **36%** by **2030**, and **97%** by **2050**



#### Construction

Reduce emissions intensity by **31%** by **2030**, and **85%** by **2050**



#### Steel

Reduce emissions intensity by **20%** by **2030**, and **92%** by **2050**

Covers **~60%** of our corporate lending portfolio

We focused on two significant, high-emitting ecosystems, **energy** and **built environment**, spanning 6 sectors based on:

- Significant contributors to GHG emissions regionally
- Material to UOB's corporate lending portfolio: ~60% of total corporate lending portfolio

Our commitments were defined in line with guidance by the Net Zero Banking Alliance (NZBA) and the Glasgow Financial Alliance for Net Zero (GFANZ)

Aligned with internationally recognised ESG principles and independently validated

**Sustainable Finance Framework for Green Building Developers and Owners**

Framework was validated by Carbon Trust

Covers both green and sustainability linked financing for global real estate financing across 8 asset classes:

Data Centres	Hotels	Industrial	Restaurants
Hospitals	Residential	Retail	Offices

**Smart City Sustainable Financing Framework**

Framework was validated by Carbon Trust

Supports companies contributing to the creation of sustainable and smart cities through the following:

Renewable Energy	Green Building Construction	Energy Efficiency	Climate Change Adaptation
Water Management	Waste Management	Green Transport	

**Green Financing for Circular Economy Framework**

Framework was validated by Moody's

Supports companies in the 3R (renew, reuse and reduce) businesses.

Potential applications:

Plastics Recycling	Metals Recycling	Electronics Recycling
Product as a Service	Circular Designs	

**Sustainable Trade Finance Framework**

Framework was validated by Moody's

Supports the needs of companies for shorter term financing (<1 year) using a 'principle based' approach.

Eligibility:

- Pure play green companies or green projects.
- Companies with recognised, sustainable industry certifications.

**Transition Finance Framework**

Framework was validated by ISS

Supports the transition of the energy intensive, fossil fuels/ brown sectors, and "hard-to-abate" sectors.

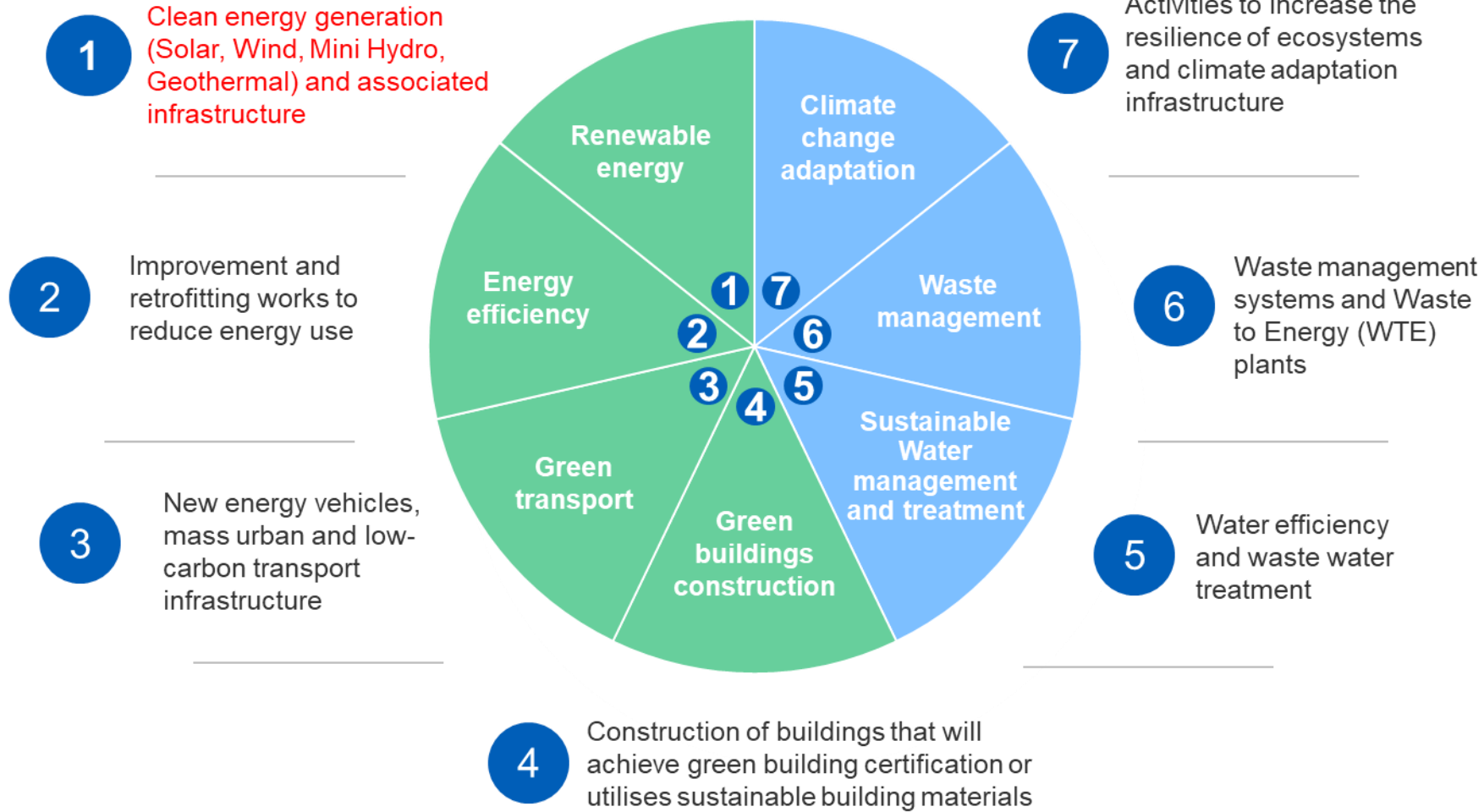
Oil, Gas & Chemicals	Transportation and Logistics*	Fossil Fuels Power Generation
Metals & Mining	CCS /CCUS	Carbon Credits/ Offsets

**Food and Agribusiness Framework**

Framework validated by Sustainalytics

Supports Food and Agribusiness companies and their full spectrum of food production activities

Water, Waste and Chemical Management	Climate-Smart Agriculture	Restoration & Biodiversity Creation
Food Waste Management	Packaging Lifecycle Management	Energy Efficiency



This framework guides the Bank's financing efforts to encourage the development of smart and sustainable cities across the region through a streamlined and transparent process.

This is done by setting out the eligible activities under each green category and the qualifying criteria for sustainability-linked loans, such as:

- Sustainability strategy and objectives
- Sustainability performance targets

### Carbon Trust provided Second Party Opinion (SPO)



Benefits to clients

**Streamlined process**  
Saves time and reduces complexity

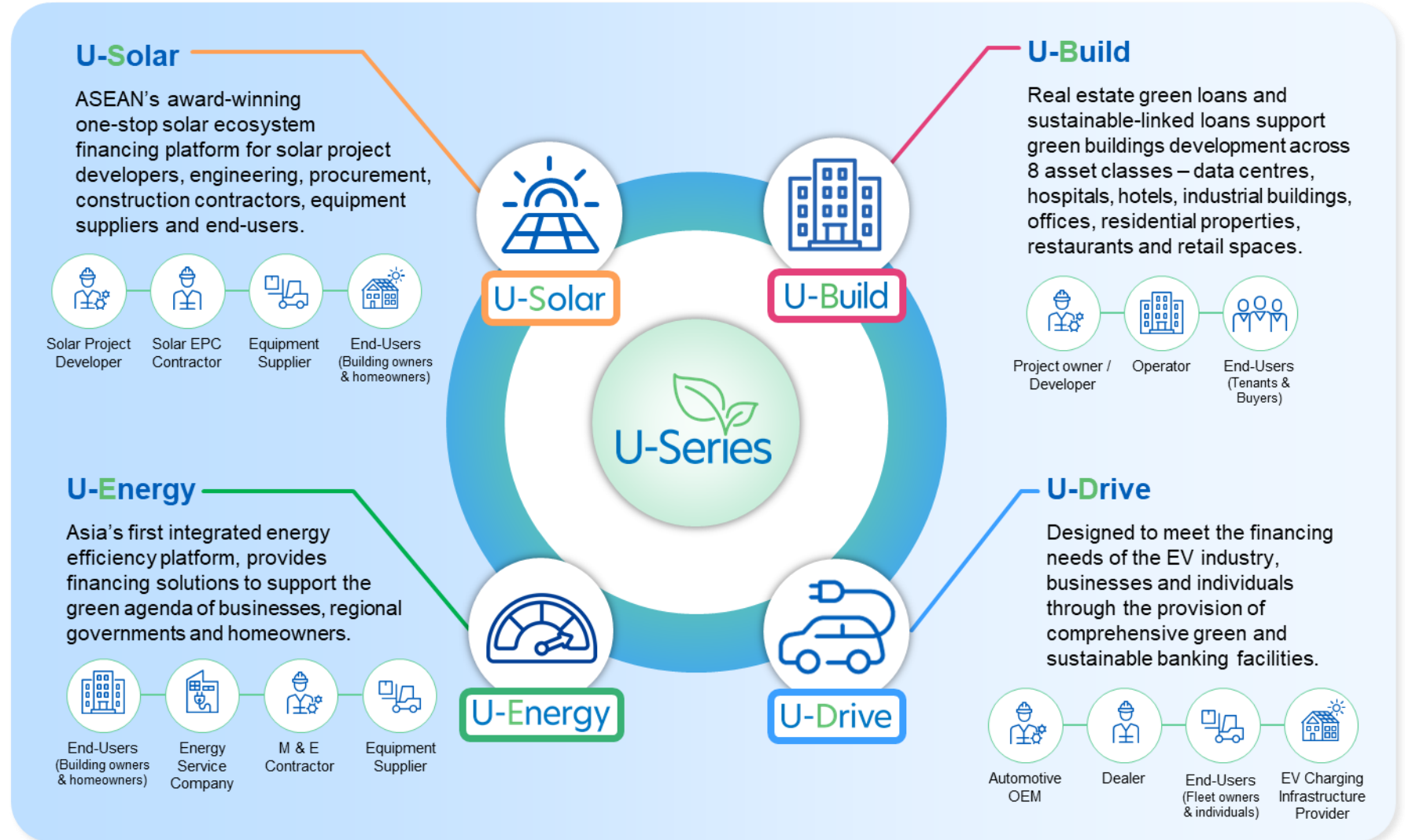
**No additional costs**  
A universal "umbrella"

**Common reporting**  
Standards for impact reporting









## U-Series

- ✓ **Simplifies sustainable financing for your business**
- ✓ **Applicable for all businesses**
- ✓ **Key Benefits**
  - Holistic solution to start your sustainability journey
  - Tap on insights and FDI advisory, partnerships, joint workshops, and more



## 2020 Renewable Energy Mix    Key Targets (non-exclusive)

 China	28%	<ul style="list-style-type: none"> <li>China's energy regulator (NEA) proposed to increase renewable energy mix from 28.2% to 40% by 2030 and integrate VRE into the overall energy system</li> </ul>
 Singapore	2%	<ul style="list-style-type: none"> <li>Increase solar to 1.5 GW by 2025 and 2 GW by 2030</li> <li>Launched grants to encourage gencos to deploy equipment or technologies to be more energy efficient and competitive</li> </ul>
 Thailand	14%	<ul style="list-style-type: none"> <li>Increase proportion of renewable energy to 30% (including hydropower) of total energy consumption by 2037</li> <li>State-owned enterprises to invest approximately \$6.4 billion in smart grids before 2036</li> </ul>
 Indonesia	13%	<ul style="list-style-type: none"> <li>Increase share of renewable energy in primary energy supply to 23% by 2025; 31% in 2050</li> </ul>
 Malaysia	15%	<ul style="list-style-type: none"> <li>Increase share of renewable energy in its installed capacity to 31% in 2025 and 40% in 2035</li> </ul>
 Vietnam	33%	<ul style="list-style-type: none"> <li>Increase share of solar and wind set to 23% in 2030, and 38% in 2045 (base load scenarios)</li> </ul>



**Winchai Co., Ltd**



**THB 2,723 Million**  
Senior Secured Green Loan Facility

Mandated Lead Arranger, Sole Co-Ordinator & Green Loan Advisor  
**September 2022**

## Awards



**Thailand Renewable Energy Deal of the Year – Onshore Wind 2023**

## Deal Summary

<b>Borrower</b>	Winchai Co., Ltd.
<b>Country of Domicile</b>	Thailand
<b>Industry</b>	Renewable Energy – Onshore Wind
<b>Deal Amount</b>	THB 2,723 Million 7-years Senior Secured Project Finance Green Loan Facility (“ <b>Facility</b> ”)
<b>Purpose</b>	To finance an operational 45MW onshore wind farm in Nikom Kham Soi district, Mukdahan province, in the N. Eastern region of Thailand (“ <b>Project</b> ”).
<b>UOB’s Role</b>	Sole Mandated Lead Arranger (“ <b>MLA</b> ”), Sole Co-Ordinator, and Green Loan Advisor
<b>Key Sponsor</b>	Nathalin Group (“ <b>Nathalin</b> ”), Nova Empire Public Company Limited (“ <b>Nova</b> ”) and Sermasang Power Corporation (“ <b>Sermasang</b> ”)
<b>Description of Sponsor</b>	<ul style="list-style-type: none"> <li>▪ <b>Nathalin Group</b>, a marine transportation service provider and investment company active across various businesses in Thailand</li> <li>▪ <b>Nova</b>, previously named Thailand Iron Works Pcl., was established in 1958 as the first Manufacturer of Galvanized Steel in Thailand before changing its business focus into renewable energy. Besides the solar projects on hand, in 2021, it started investing in wind energy via acquisition of shares in Winchai.</li> <li>▪ <b>Sermasang</b> was originally established in 2010 with an aim to build a renewable energy company. It successfully started commercial operation of a 40MW solar project with a PPA with EGAT. By 2Q2022, it has more than 70 projects and &gt; 200MW of projects across the solar, wind and biomass sectors</li> </ul>

## Key Transaction Highlights

- **Deepening of UOB’s track record in the Thai domestic Renewable Energy Finance space** – Successful closure of this deal marks one of the rare onshore wind farms in Thailand not financed by a local Thai bank.
- **Thailand’s Renewable Energy Ambition** – The Project is in line with the Thailand’s overall ambition for renewable energy where its Alternative Energy Development Plan 2015-2036 set the cumulative additional capacity target to 19,634 MW by 2036 of which wind energy is targeted at 3,002 MW.
- **Consolidation of Nova’s Renewable Business** – As part of Nova’s ambition to build up its renewable business in the region, the transaction process also saw the acquisition by Nova of part of Nathalin’s shareholding in Winchai. This allows Nova to continue to develop into a regional renewable player

**BCG-SP Solar 1 Joint Stock Company**




**USD 32 Million**  
Senior Secured Project Finance  
Term Loan Facility

Mandated Lead Arranger,  
Technical Bank  
**July 2022**

## Deal Summary

<b>Borrower</b>	BCG-SP Solar 1 Joint Stock Company
<b>Country of Domicile</b>	Vietnam
<b>Industry</b>	Renewable Energy (Solar)
<b>Deal Amount</b>	USD 32 Million 10-year Senior Secured Project Finance Term Loan Facility (“ <b>Facility</b> ”)
<b>Purpose</b>	To finance the development, financing, operations and maintenance of a portfolio of up to 100 MWp of Commercial & Industrial (“ <b>C&amp;I</b> ”) rooftop solar photovoltaic power projects across various sites in Vietnam.
<b>UOB’s Role</b>	Mandated Lead Arranger (“ <b>MLA</b> ”), Technical Bank
<b>Key Sponsor</b>	<ul style="list-style-type: none"> <li>▪ BCG Energy JSC (“<b>BCG Energy</b>”): 51%</li> <li>▪ Singapore Power International Pte Ltd (“<b>SPI</b>”): 49%</li> </ul>
<b>Description of Sponsor</b>	<ul style="list-style-type: none"> <li>▪ <b>SPI</b> is the investment holding company for Singapore Power Limited (“<b>SP</b>”) Group’s overseas investments. SP is the biggest electricity retailer and sole electrical grid and gas grid operator in Singapore. SPI has investments in Australia whereby it owns and operates electricity transmission network, electricity distribution network and gas distribution networks in multiple regions. SPI also has investments in China through which they provide district cooling, energy efficiency solutions, and engineering services.</li> <li>▪ <b>BCG Energy</b> is the renewable energy arm of Bamboo Capital Group (“<b>BCG</b>”) and is an active green energy developer in Vietnam with a focus on solar farm, rooftop solar and wind power projects. By the end of Dec 2020, BCG Energy has increased its total generating capacity of solar energy to 453.24 MWp. BCG Energy was ranked third among the largest renewable energy developers in Vietnam.</li> </ul>

## Awards



**Vietnam Renewable Energy Deal of the Year – Solar 2023**

## Key Transaction Highlights

- **Supporting SP Group’s Regional Green Strategy** – The Project is part of SP Group’s strategy towards sustainability by investing in green renewable energy projects. As solar rooftop projects provide a sustainable alternative to carbon intensive energy sources, the Project is aligned with UOB Smart City Sustainable Finance Framework’s aim to transition towards a low carbon global economy. In order to achieve their sustainability goals, SP Group has looked towards overseas markets, in particular Southeast Asia, in order to increase their renewable energy portfolio.
- **Distributed Solar an Important Part of Vietnam’s Renewable Energy Transition Plan** – With the goal of achieving carbon neutrality by 2050, distributed solar projects such as this transaction will form an integral part of Vietnam’s overall renewables strategy. When fully completed, the portfolio of projects would consist of up to 100 MW of greenfield and brownfield rooftop solar photovoltaic systems across Vietnam and are expected to produce 87GWh p.a. of green energy, equivalent to more than 45,000 MT p.a. of CO<sub>2</sub>e avoided.
- **Tailored Financing Solution for a Complex Cross-Border Transaction** – Given the complex nature of the Facility – comprising numerous projects with different offtakers, held across multiple legal entities (resulting in hundreds of security documents, project documents including PPAs and O&M contracts), it was a challenging task to ensure that the lenders’ interests are fully catered to whilst providing the Borrower with sufficient time to provide and perfect relevant security. Further, given the variety of offtakers and variations of PPA contract terms (with offtakers ranging from large reputable corporations to state-owned companies), the structure required customization in order to ensure all required shortfalls were covered / addressed adequately.





**SolarNova 4 Beta Assets Pte. Ltd.**



**SUNSEAP**  
**SGD 86.8 Million**  
Senior Secured Green Loan Facility

Joint Financial Advisor, MLA,  
Documentation Bank, Accounts Bank,  
Facility & Security Agent  
**November 2021**

## Deal Summary

<b>Borrower</b>	SolarNova 4 Beta Assets Pte. Ltd.
<b>Country of Domicile</b>	Singapore
<b>Industry</b>	Renewable Energy (Solar)
<b>Deal Amount</b>	SGD 86.8 Million 7-years Senior Secured Green Loan Facility (“ <b>Facility</b> ”)
<b>Purpose</b>	To finance the development of a portfolio of rooftop solar projects (“ <b>Project</b> ”) with a combined capacity of 97.7MWp (and potentially up to 102MWp) in Singapore, across more than 1,200 public housing blocks and 49 government sites as part of the HDB tendered SolarNova 4 (“ <b>SN4</b> ”) programme.
<b>UOB’s Role</b>	Joint Financial Advisor, Mandated Lead Arranger, Documentation Bank, Accounts Bank, Facility and Security Agent
<b>Key Sponsor</b>	Sunseap Group
<b>Description of Sponsor</b>	<ul style="list-style-type: none"> <li>▪ <b>Sunseap Group</b>, Singapore’s leading clean energy solutions provider, has over 2,000 MWp of solar energy projects contracted across Asia, on more than 3000 buildings in Singapore, including public housing estates, as well as commercial and industrial buildings. The Group operates in various parts of Asia Pacific, including Vietnam, Cambodia, China, Thailand and Malaysia.</li> </ul>

## Awards



**Singapore Renewable Energy Deal of the Year 2022**

## Key Transaction Highlights

- **Largest Solar rooftop Project in Singapore at the time** – In Oct 2019, Sunseap was awarded the tender for Phase 4 of the SolarNova programme by HDB. The SolarNova programme is a whole-of-government effort led by HDB and EDB to promote and aggregate demand for solar PV systems to achieve economies of scale and drive growth for Singapore’s solar industry. SN4 was the **largest clean energy project in Singapore** with installation of roof-top solar across more than 1,200 HDB blocks and 49 government sites. The Project is estimated to generate 97,775 MWh of electricity, equivalent to powering to 20,400 HDB four-room flats and **potentially offset more than 68,583 tonnes of carbon emissions per annum**.
- **VPPA with Facebook** – The Project also benefit from a Virtual Power Purchase Agreement (“**VPPA**”) signed between Facebook (now Meta) and Sunseap. Under the VPPA, the excess solar energy from these sites is exported to the power grid and the renewable energy credits (“**RECs**”) from this exported energy are then sold by Sunseap to Facebook under the private VPPA deal. The solar energy generated will support Facebook’s Singapore operations, including its first custom-built data centre in Asia as well as fulfilling Facebook’s commitment under the RE100 initiative. The VPPA also represents one of the largest synthetic PPAs signed to-date.
- This transaction is poised to achieve many firsts:
  - ✓ **First non-recourse Commercial & Industrial distributed solar portfolio** financing under the SolarNova programme
  - ✓ **First solar financing** done in Singapore **supported by a “FAANG”-off taker**
  - ✓ **First-of-its kind VPPA** signed in Singapore of this scale.
  - ✓ First project financing enhancing domestic PV supply after launch of **Singapore’s Sustainability Roadmap**
  - ✓ **First SORA-based** project financing in Singapore



**Berkeley Energy  
Symbior Energy Ltd.**

 BERKELEY  
ENERGY

 SYMBIOR SOLAR

**THB 1,260 Million**  
Senior Secured Green Loan Facility

Mandated Lead Arranger, Facility  
Agent, Account Bank, Hedge Provider  
**November 2020**

## Awards



**Thailand Best Green  
Loan 2020**

## Deal Summary

<b>Borrower</b>	Symbior PMR Co. Ltd. / Solar D Symbior Co. Ltd.
<b>Group</b>	Berkeley Energy / Symbior Solar
<b>Country of Domicile</b>	Thailand
<b>Industry</b>	Renewable Energy – Solar
<b>Deal Amount</b>	THB 1,260 Million
<b>Purpose</b>	To part finance project costs incurred for the construction of a 60MWp portfolio of Commercial and Industrial (“C&I”) solar photovoltaic (“PV”) projects in Thailand
<b>UOB’s Role</b>	Sole Mandated Lead Arranger, Facility Agent, Account Bank, Hedge Provider
<b>Description of Sponsors</b>	<ul style="list-style-type: none"> <li>• <b>Singapore-headquartered BECIS</b> is a leading energy as a service provider to high quality C&amp;I customers. BECIS was established in 2019 and benefits from a well-capitalised base via an aligned and strategically beneficial shareholding group, including <b>Berkeley Energy, FMO (the Dutch Development Finance Institution), Siemens Financial Services and Norfund-KLP.</b></li> <li>• <b>Symbior is an experienced solar PV developer in SE Asia and China.</b> It established its business in Thailand in 2012 to provide fully integrated solar PV project development, ownership and operation to accompany C&amp;I customers with reliable, cost-effective renewable energy as a service as well as supporting them on their journey to reduce their environmental footprint, achieve their sustainability goals while reducing their operating costs.</li> <li>• BECIS (70%) and Symbior (30%) have formed a joint venture in Thailand which allows for both organisations to bring their strengths together for the benefit of the C&amp;I customers.</li> </ul>

## Key Transaction Highlights

- **Landmark Transaction** - The transaction was the **first onshore Thai C&I solar portfolio financing** successfully structured and financed in Thailand, and was also the **largest, non-recourse Solar C&I portfolio** financing closed in Thailand in 2020. This transaction also won the **Asset Triple A Country Award 2020 for “Best Green Loan” in Thailand.**
- **Diversified Portfolio of Off-takers** – The initial batch of portfolio of projects consists of **off-takers from diverse industries**, such as retail, manufacturing, packaging and food processing. Off-takers from future batches of projects will include more diverse industries such as education facilities and jewelry sectors. Off-take risk is mitigated in this transaction through off-taker diversification compared to a single off-taker type project typically seen in utility scale type projects.
- **Resilience to COVID-19 Impact/Interruptions** - The transaction was completed against the backdrop of a challenging business environment, including validation that the unique structure was sufficiently robust and was able to **withstand peak COVID 19-induced volatility** (Asian country lock-downs), during the negotiation and execution of the Facility.
- **Reduction of CO<sub>2</sub> Emissions** – The Borrowers’ portfolio of projects, once fully complete and at peak production, will help reduce up to **41,000 tonnes of CO<sub>2</sub> emissions** every year.

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