



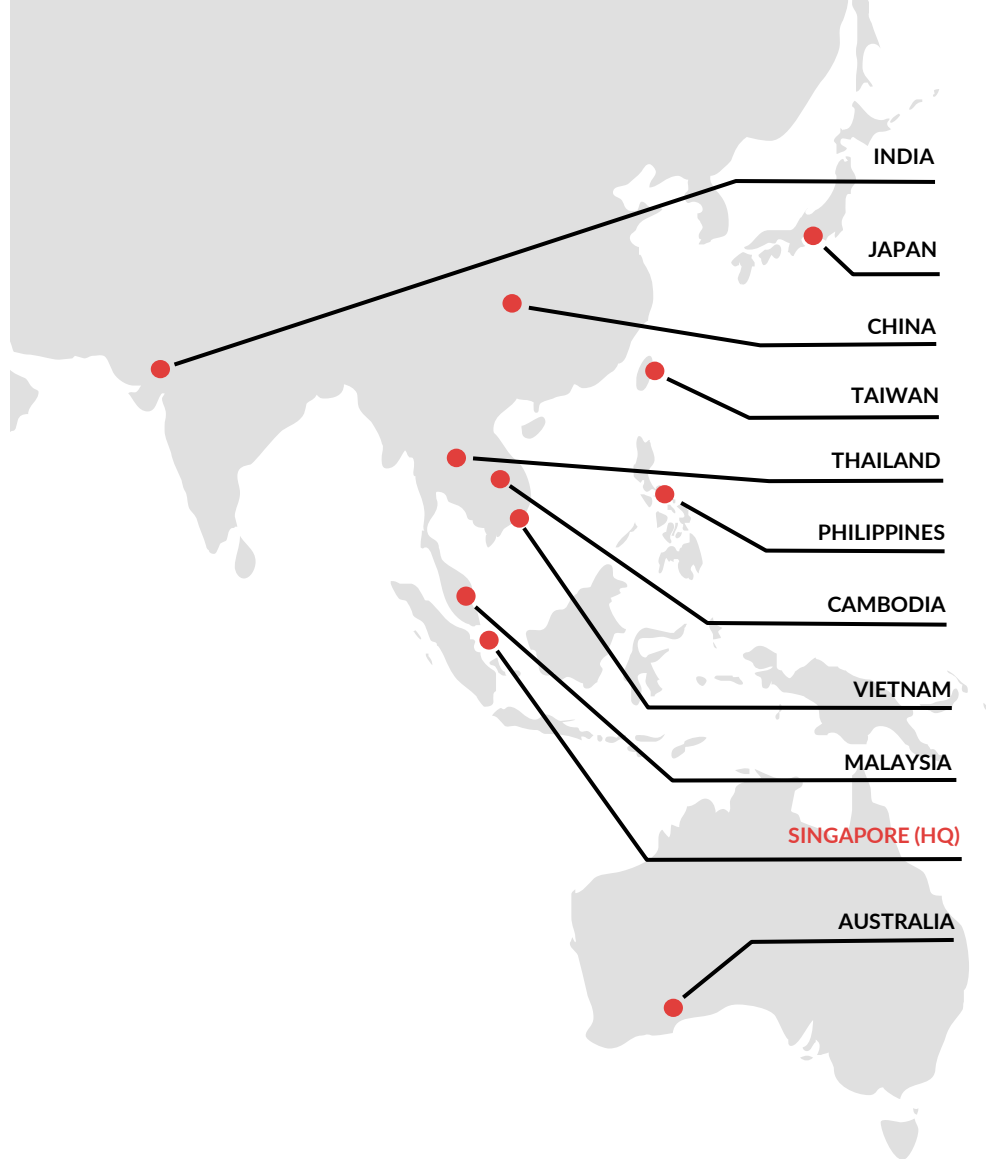
**SIEW 2021**

**ERI@N Thinktank Roundtable**

28 October 2021

## **Guiding Building And Facility Owners In Their Transition To A Low Carbon Future**

**Peter Goh**  
Vice President  
Sunseap Group



## We are a full spectrum clean energy solutions provider

With more than **2 GWp** of solar capacity contracted, across **11 countries** and **6 regional offices**, Sunseap is Singapore's most established solar PV developer.

## Our Valued Clients

Sunseap is proud to serve clients of all sizes and across all market segments, from residential consumers to commercial businesses and government organisations.



HOUSING &  
DEVELOPMENT  
BOARD



Microsoft



## Our Trusted Partners

Sunseap is also supported by an extensive network of financial institutions and business partners. Together, we are able to provide a greater range of financial and engineering services for our clients.

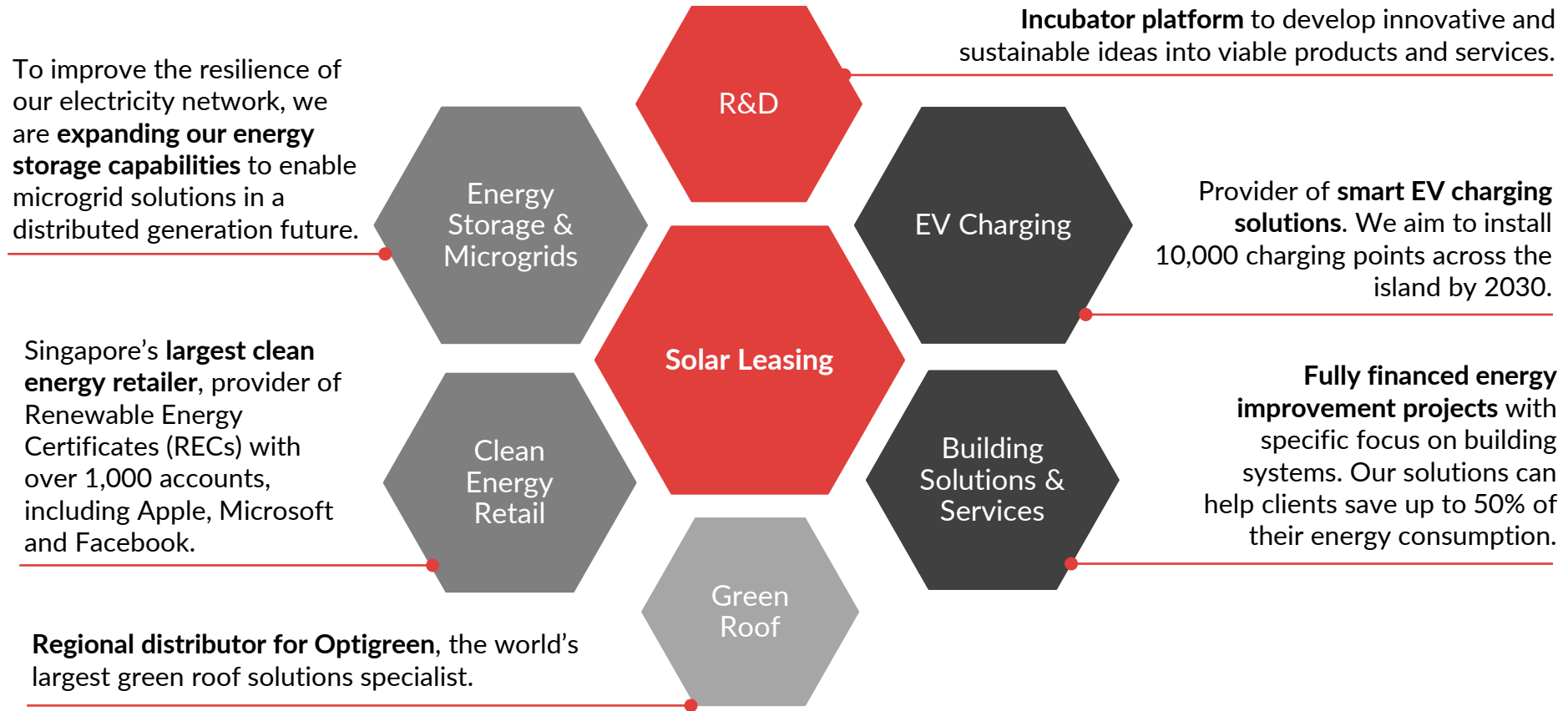
TEMASEK  
HOLDINGS



# Providing a suite of energy and sustainability solutions

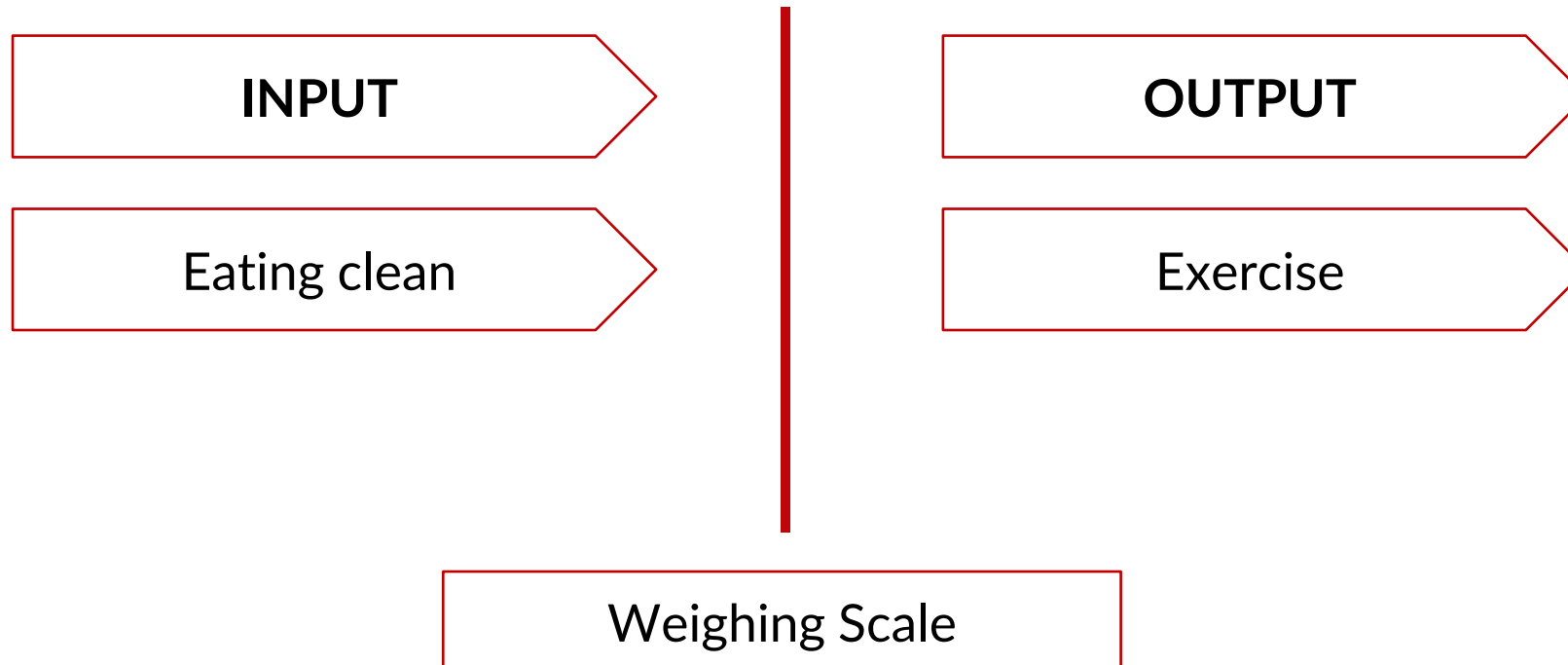
While solar leasing forms the cornerstone of our business, we have also expanded to offer the full spectrum of clean energy solutions. This ranges from rooftop solutions to EV charging, building energy performance consultancy, contracting, and energy storage.

## Our businesses at a glance

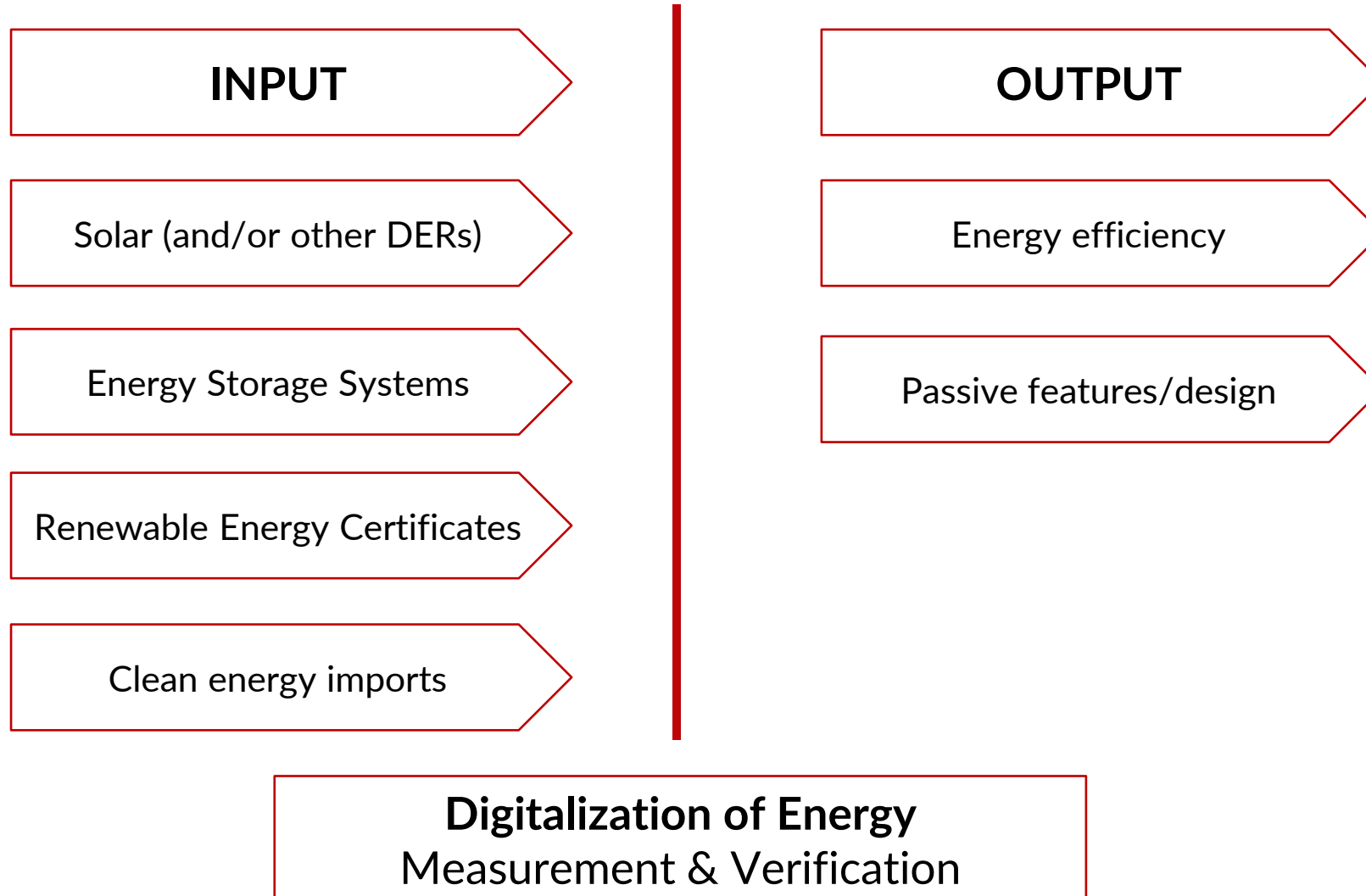


## Decarbonization... is like a weight-loss journey

1. Understand where you stand now
2. Set your targets
3. Draw up a plan
4. Understand that it is a journey – it doesn't happen overnight!
5. Weigh-in at every milestone
6. Prepare to make sacrifices but know that the efforts will eventually pay off
7. Seek professional help

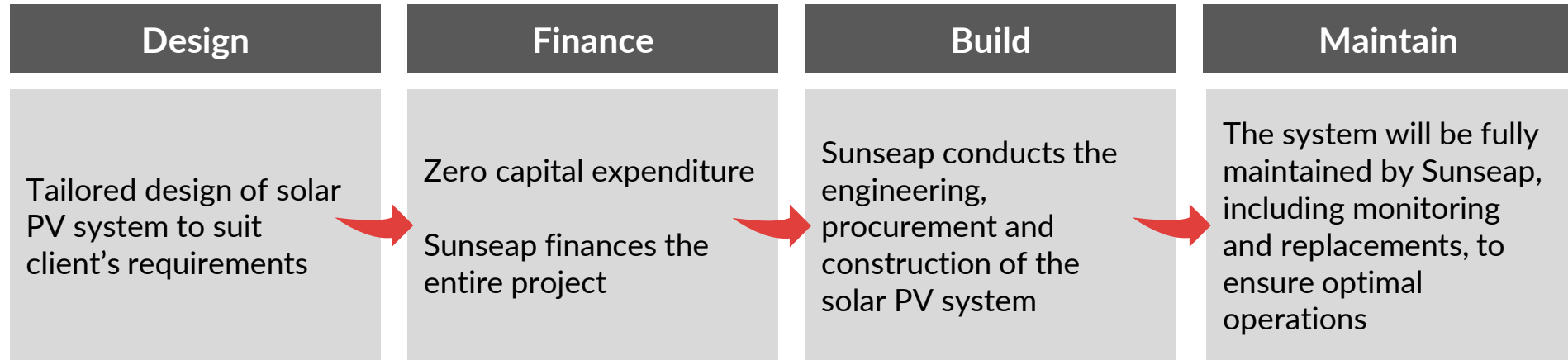


## In a building context



# Solar is the most reliable source of renewables in Singapore

There are various commercial models for clients to choose from, from CAPEX-free Power Purchase Agreement (PPA) to conventional EPC-type outright ownership.



SMRT Bishan Depot

...and can be deployed under different circumstances



Woodlands Offshore Floating system, 5 MWp



Solar Farm in Vietnam, 168 MWp



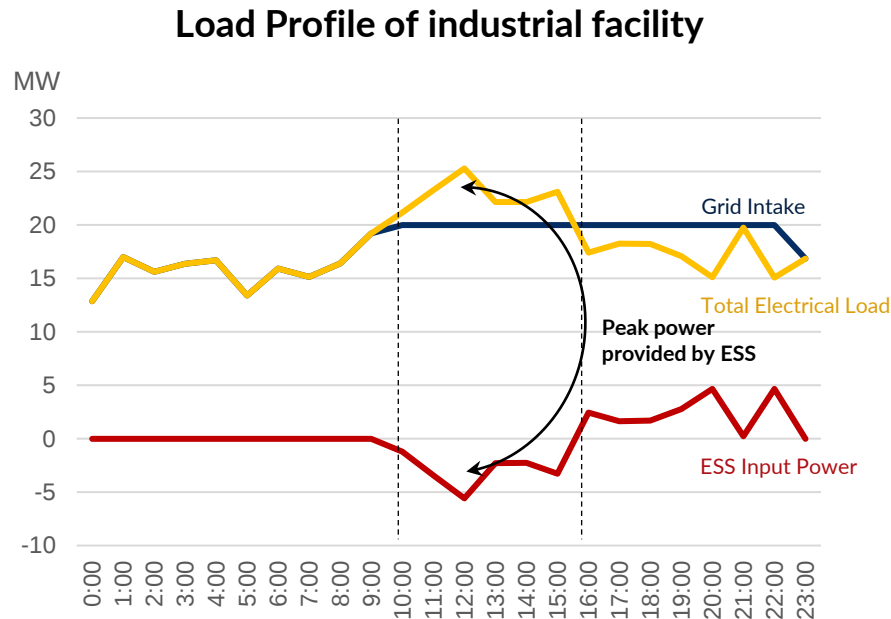
Jurong Port, 9.5 MWp



Singapore American School, 1.2 MWp

# Peak-shaving through Energy Storage System (ESS)

ESS can provide an array of services to the end user, providing not only energy security but also extract energy efficiency and optimise energy consumption of the electrical system.



## Applications of ESS

- Peak-shaving to reduce demand charge
- Power quality and frequency regulation
- Dynamic tariff response; energy arbitrage
- Contingency backup power
- Deferral of electrical equipment upgrade

## How does ESS reduce your demand charge?

- Demand charge (\$/kW per month) of a facility is commonly set higher than the average load to account for peak periods.
- ESS can reduce power intake from the grid during peak periods by supplementing the additional power.
- This reduces the power draw from the grid, therefore reducing the contracted capacity required.

# Energy Efficiency Retrofit

Air-conditioning and lighting typically makes up **more than 50%** of a building's total energy consumption. **30-60% energy cost reduction** can be achieved via optimisation and retrofit to energy efficient models.



## Selected Project References

Lighting retrofit and optimisation is a low-lying and fast turnaround upgrade that can provide substantial savings. Sunseap is experienced in managing a **variety of unique operational environments**.



### SingPost Paya Lebar Headquarters

Postal sorting facility and offices

#### Scope:

Retrofitting of high bay lighting at postal sorting areas and common area lighting to LED.

Retrofit duration: 4 months

Monthly energy savings: 137,000 kWh

Monthly cost savings: \$17,000



### Hamilton Sundstrand Asia Pacific (Changi)

Aerospace component production facility

#### Scope:

Retrofitting of high bay lighting at precision engineering production area.

Retrofit duration: 2 months

Monthly energy savings: 35,000 kWh

Monthly cost savings: \$4,000

## Selected Project References

Lighting retrofit and optimisation is a low-lying and fast turnaround upgrade that can provide substantial savings. Sunseap is experienced in managing a **variety of unique operational environments**.



### Woodlands Horizon

Flatted factory

Scope:

Retrofitting of driveway and common area lighting to LED.

Retrofit duration: 1 month

Monthly energy savings: 21,000 kWh

Monthly cost savings: \$4,500



### Storhub; 9 sites across Singapore

Self storage facilities and offices

Scope:

Installation of solar PV system

Retrofitting of air-conditioning system

Installation of green roof system

## Defraying upfront costs with bank financing

UOB's U-Energy is Asia's first integrated financing platform that simplifies the adoption of energy efficiency projects. With this platform, building owners can easily connect with U-Energy partners (energy service companies (ESCOs)), and access flexible financing options for their energy efficiency projects.

U-Energy and its partners support air-conditioning, chiller, elevator, energy and power management system, façade, lighting control and solar projects across commercial, industrial and public buildings.



<https://www.uobgroup.com/u-energy/singapore/business.page>

# Benefits of Green Roofs

**“Nature on superstructure”.** Apart from its aesthetic value, green roofs play a functional role in the greater picture of urban sustainability. We are the regional distributor for Optigreen® green roof solutions.

## 1. Productive space

- Green roofs can function as recreational spaces for people or natural habitats for local species
- Solar panels can also be installed

## 2. Improved water retention

- Retains 40-80% of annual rainfall
- Reduce flash floods and damages
- No need for complex drainage systems

## 3. Lightweight

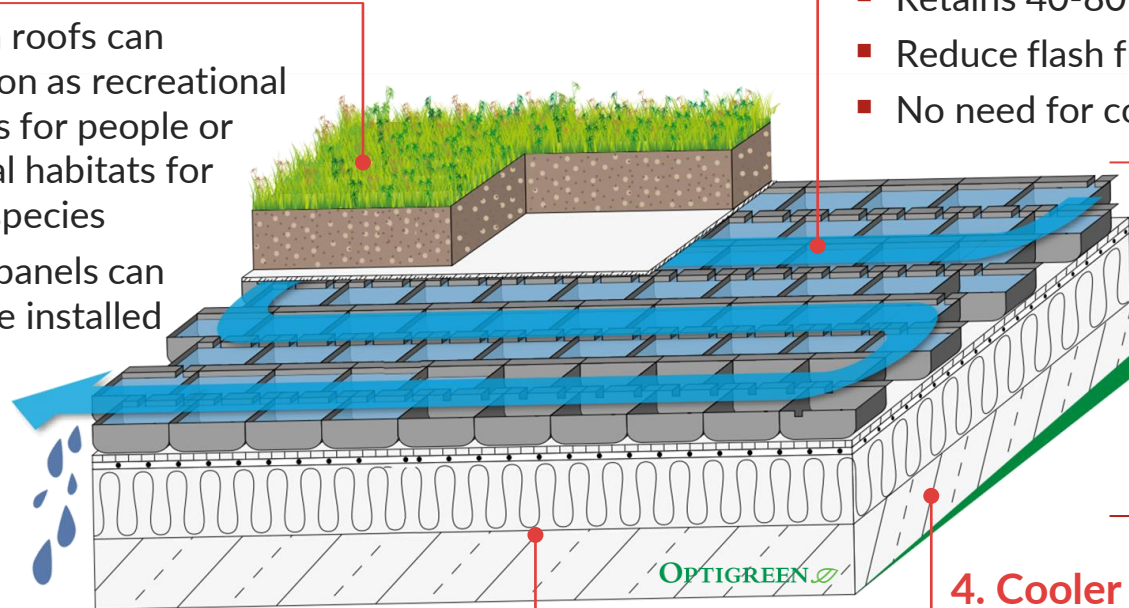
- Total wet weight from 1.5 kN/m<sup>2</sup> or 150 kg/m<sup>2</sup>
- The green roof layers can be loose-laid onto the roof

## 4. Cooler roofs

- Green roofs cut down heat transmission by up to 90%, reducing cost for cooling

## 5. Reduced roof maintenance

- Green roofs protect the waterproofing layer from exposure to the elements, reducing degradation and doubling its lifespan



## Incentives

- NParks can co-fund up to **50% of installation costs** for existing buildings

For more information: <https://www.nparks.gov.sg/skyrisegreenery/incentive-scheme>

## Solar Green Roof

At Sunseap, we constantly push the boundaries of innovation. This rooftop is made up of a combination of solar PV system and Optigreen® green roof system to achieve enhanced roof durability and productivity.

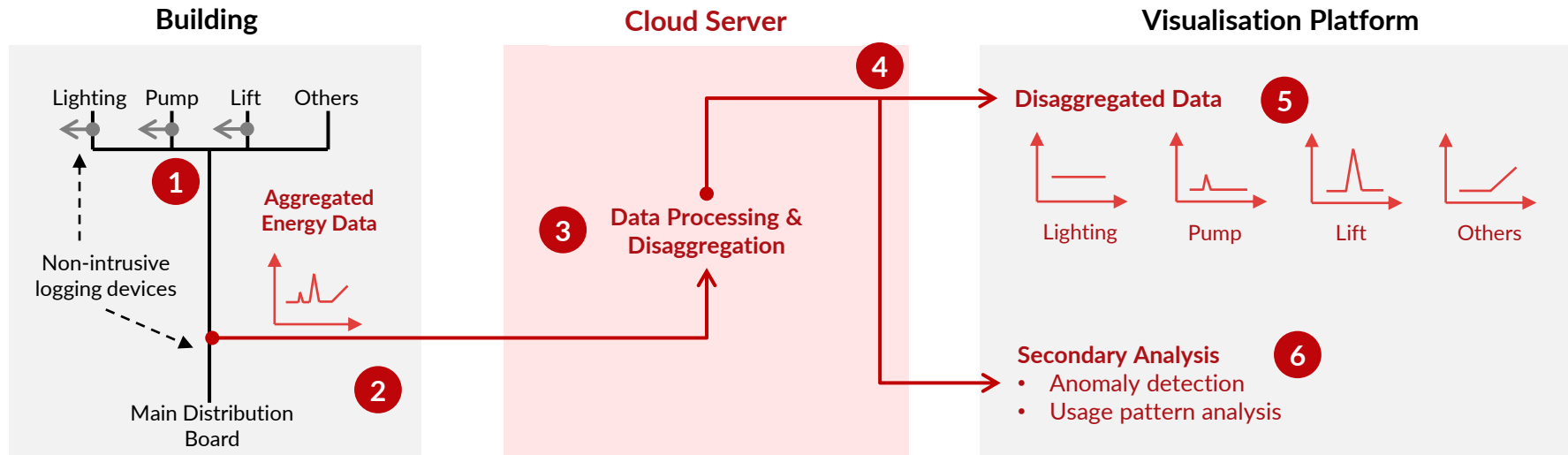


HDB Centre of Building Research

# Energy Intelligence and Monitoring

Suited for existing buildings and facilities that are looking for a hassle-free approach in **energy monitoring and data analysis**, provide actionable insights and realise potential cost savings.

## How it works:



1. Temporary logging of individual loads for machine learning via non-intrusive logging instruments.

2. Raw energy data is collected at the main distribution board.

3. Data is processed and disaggregated by an artificial intelligence algorithm.

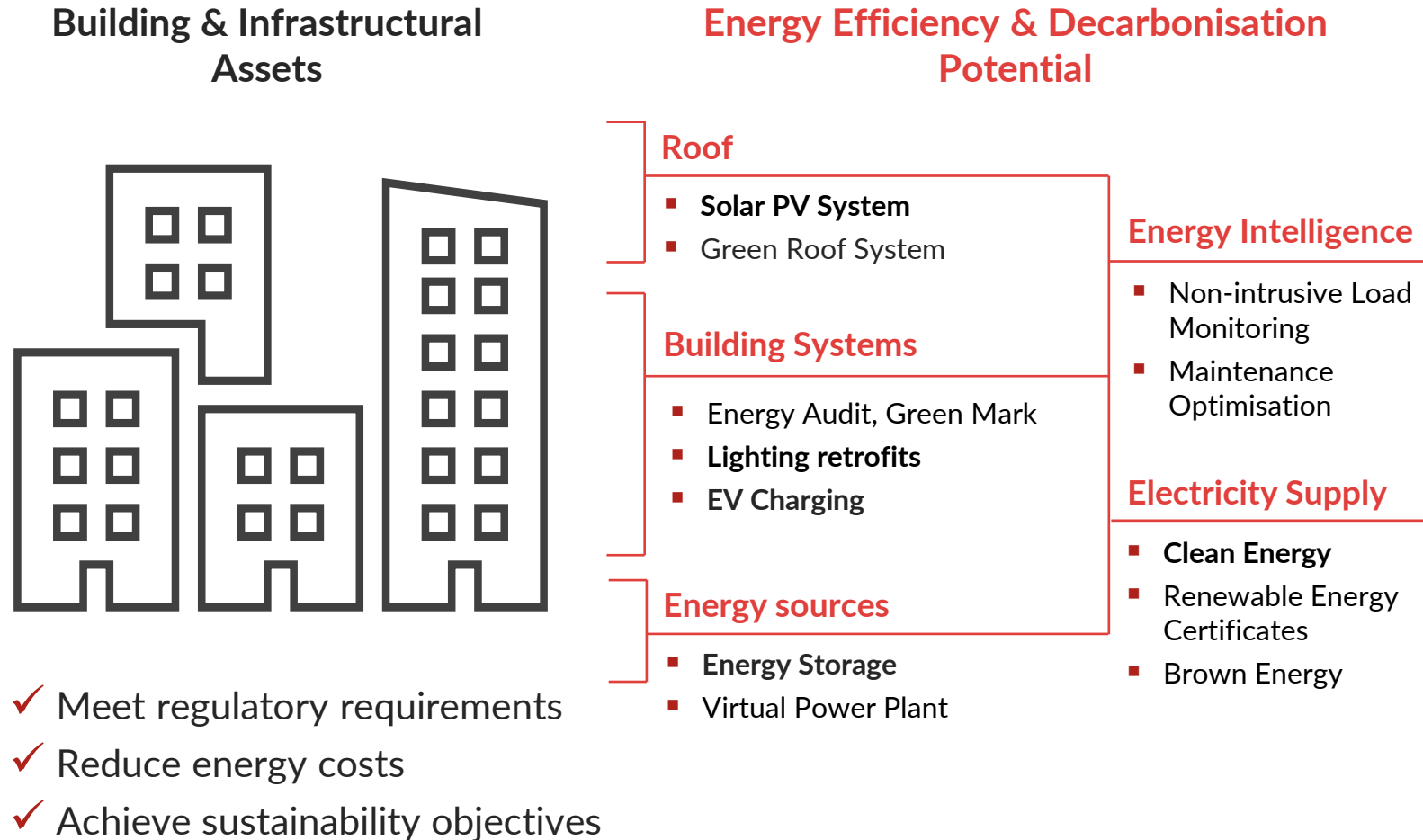
4. Disaggregated data and analysis results are sent to a visualisation platform.

5. Energy data of individual electrical loads are displayed on the building management system platform.

6. Secondary analysis and status assessment of these loads can also be integrated with automatic response systems.

# We are here to help

Sunseap can assist your transition to a low-carbon future through our unique set of solutions.



Speak to us to find out how we can help you achieve your sustainability and energy objectives



## Sunseap Group of Companies

### Contact Information

Peter Goh

Vice President

**E** [peter.goh@sunseap.com](mailto:peter.goh@sunseap.com)

**M** (65) 9146 6708