



Renewable Energy Landscape in Peninsular Malaysia

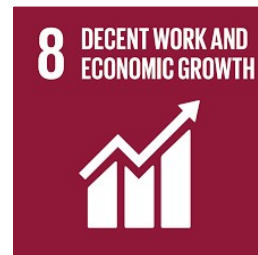
BURSA – HLIB STRATUM FOCUS SERIES XI
Renewable Energy – A Genesis for a Sustainable Future

April 2021
Sustainable Energy Development Authority (SEDA) Malaysia

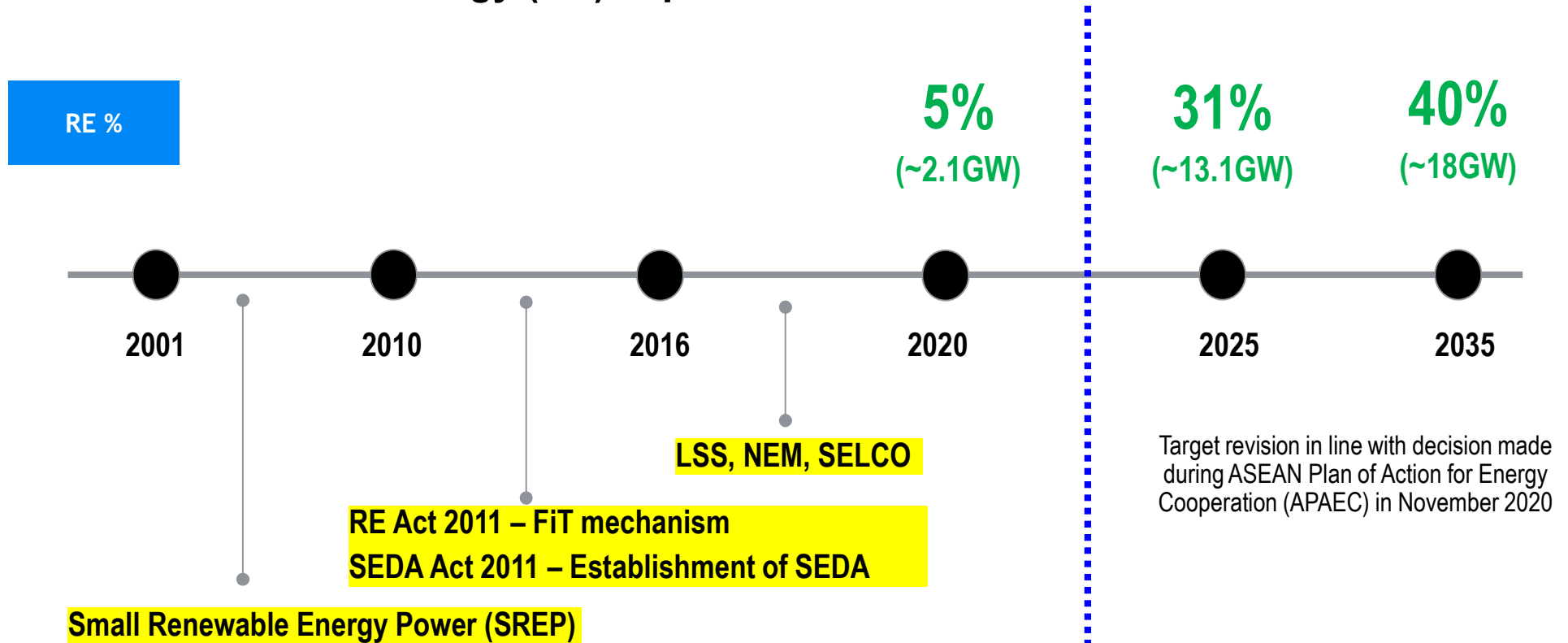
Sustainability



SUSTAINABLE DEVELOPMENT GOALS



SEDA alongside with other industry players are working towards realizing national renewable energy (RE) aspirations



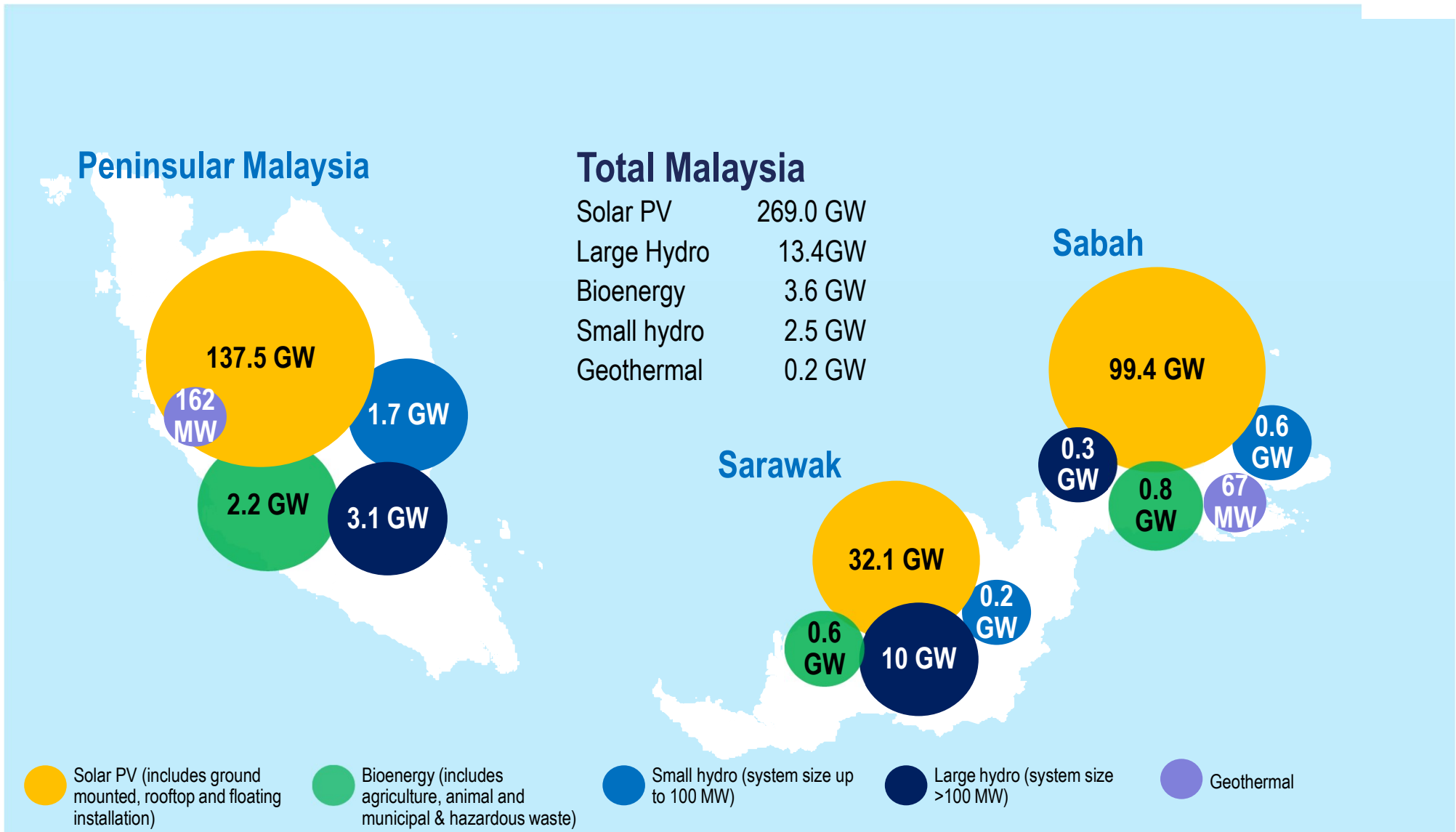
Note:

1. The target is in line with the following:
 - i. National Renewable Energy Policy and Action Plan (NREPAP) – 2010
 - ii. Nationally Developed Commitments (NDC) under Paris Agreement 2015

2. Definition:

LSS : Large Scale Solar
NEM : Net Energy Metering
SELCO : Self-consumption

Malaysia's journey towards realizing its decarbonization agenda by exploring the indigenous RE potential



Key Drivers of Renewable Energy Growth to address all aspects



Political

- Greenhouse gas (GHG) emission targets
- Policies supporting renewables power generation



Social

- Public opposition to coal generation projects due to environmental concerns
- Public opposition to nuclear generation projects due to renewed safety concerns post-Fukushima



Economic



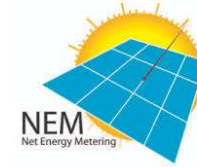
- Availability of financing from institutional investors shifting away from traditional asset classes with diminishing yields (e.g. sovereign debt)
- New business models providing additional revenues for renewables

Technological



- Rapid decrease of technology costs for specific renewable technologies (solar PV, wind energy)
- New solutions and technologies to mitigate effect of renewable energy fluctuations on grid stability

SEDA is responsible for two (2) RE initiatives: Feed-in-Tariff (FiT) & Net Energy Metering (NEM)



Mechanism	Feed-in-Tariff	Net Energy Metering
Begins	2011	2016
Key goal	To promote RE development via incentives mechanism (1.6% collection from utility)	To address biz value proposition to commercialize PV @ rooftop
RE sources	Solar (PV), biomass, biogas, mini-hydro, geothermal	Solar (PV)
Operation	Quota release i. Quota for PV was fully taken up in 2016 E-Bidding exercise i. Annually, according to RE sources MySuria	Quota release i. NEM 1.0 – 2016 ii. NEM 2.0 – 2019 (Quota fully taken up) iii. NEM 3.0 – Launched in Jan '21
Commercial	Power Purchase Agreement (PPA)	Contractual Agreement between Prosumer – Financier - TNB

Suruhanjaya Tenaga is managing the other RE-development mechanism Large Scale Solar (LSS) & Self-Consumption (SELCO)



Guidelines
On The Connection Of Solar
Photovoltaic Installation For
Self-Consumption

Mechanism	Large Scale Solar	SELCO
Begins	2017	2017
Key goal	To promote competitive development of large scale solar farm / floating solar	Encourage PV installation to hedge against increase of electricity bills
RE sources	Solar (PV)	Solar (PV)
Operation	Bidding exercise LSS 1 – 2016 LSS 2 – 2018 LSS 3 – 2019 LSS 4 - 2020	Open application
Commercial	Power Purchase Agreement (PPA)	Revision of Electricity Supply Agreement between TNB - Prosumer

New Enhanced Dispatching Arrangement (NEDA) is a platform established in June 2017 to facilitate energy trading via non-PPA arrangement

Cost Efficiency



Enhance cost efficiency in generation through short-run competition

Energy Efficiency



Enable energy-efficient options, particularly the use of efficient technology, such as Cogeneration Plant to participate in the electricity market

Business Opportunity



Provide opportunity for non-PPA/SLA Generators, such as Cogeneration Plant, Small Renewable Plant, Franchise Utilities, Part PPA/SLA Generators, and Expired PPA/SLA Generators to operate as Merchant Generators to sell energy to the Single Buyer

Business Enhancement



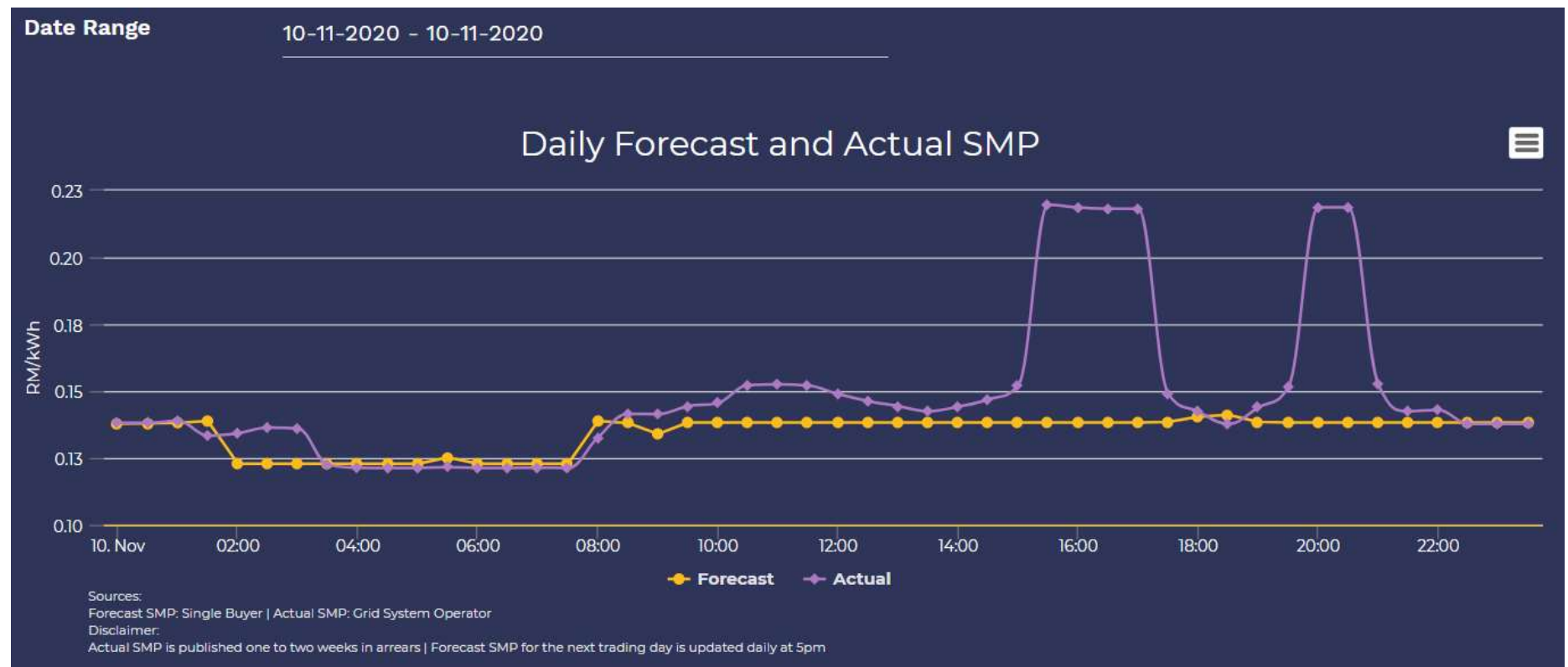
Enable PPA/SLA Generators, Expired PPA/SLA Generators and Part PPA/SLA Generators to enhance their business options by maximizing the use of existing facilities in a cost-efficient manner for the benefit of the electricity supply industry and the consumer

The pricing scheme under NEDA will be based on **System Marginal Price (SMP)** established by Single Buyer department

Source: Single Buyer, Malaysia

Brief on System Marginal Price (SMP)

Energy price of the most expensive thermal generator dispatched to meet demand in the half-hour period

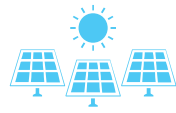
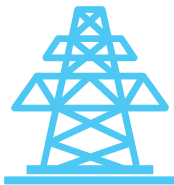


Source : Single Buyer Department, Malaysia

PV has been more commercially available to many, and emerging new market / biz models towards accelerating PV-based resources

Existing business model

1 Net Energy Metering LSS PPA



Future

- Revised NEM rates
- Increasing competition at auctions decrease strike price

New business models

1 Corporate PPAs



2 Peer-to-peer energy trading/VPP



3 Renewable Energy Certificates



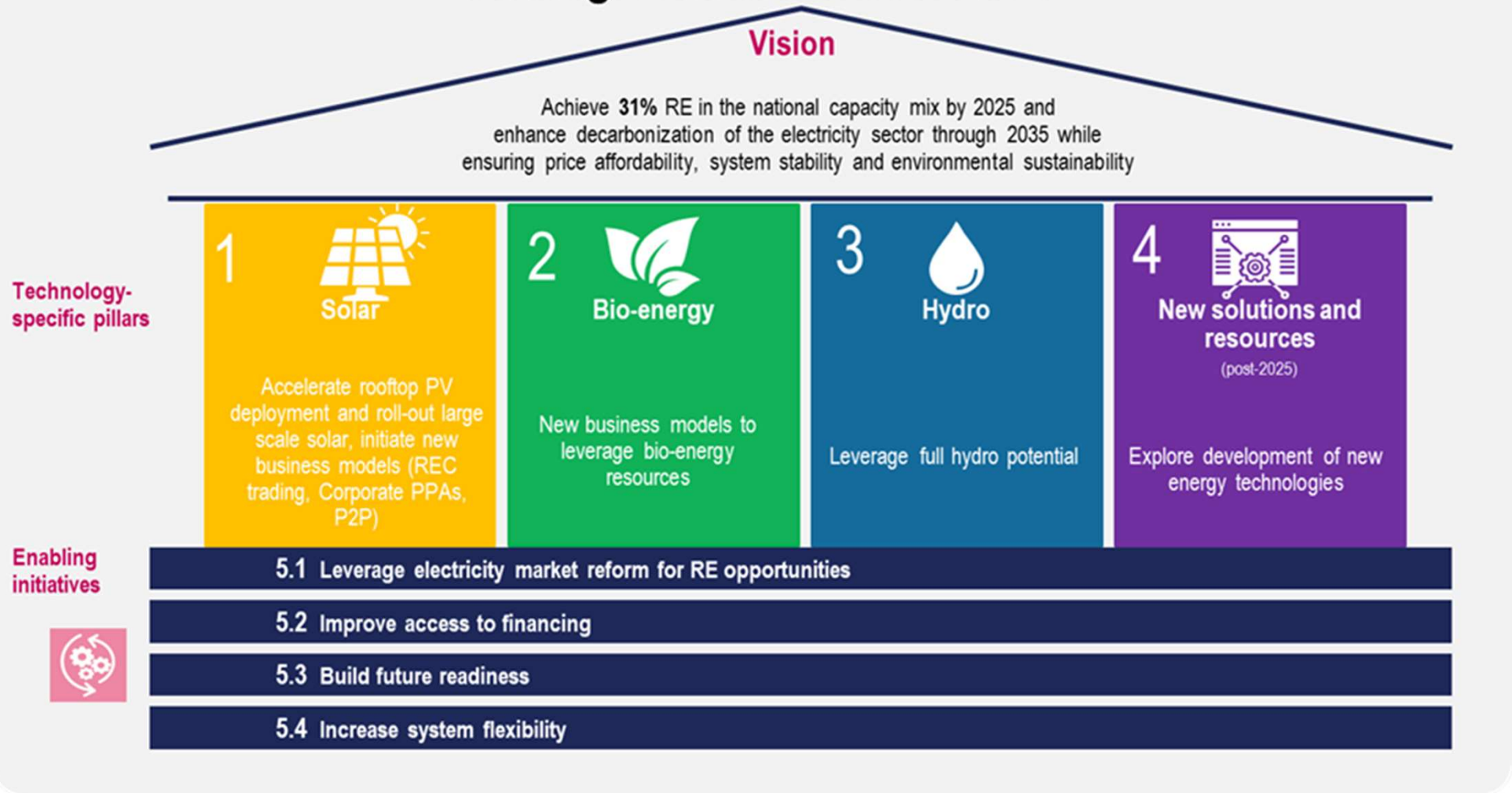
Future

- Additional income streams through new business models are required

Source: SEDA; Roland Berger

Strategic Framework has been formulated in the Renewable Energy Transition Roadmap (RETR) * in driving the renewable energy growth

Strategic framework for 2035



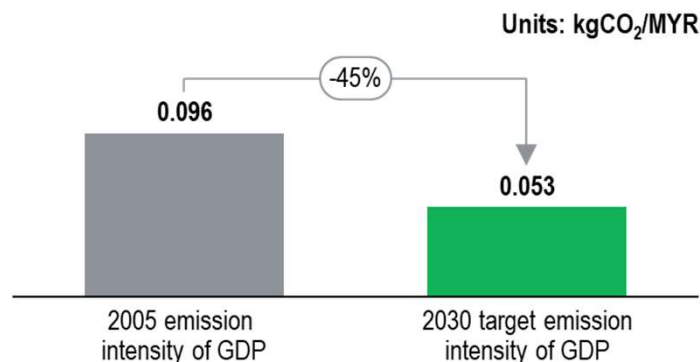
* RETR is on the final revision phase and is expected to be published by Q3 of 2021

In a nutshell...

Energy transition phase has been identified **as one of the main economic recovery** post-pandemic



In line with other decarbonization agenda, Malaysia expects that the RE growth in the energy mix will be able to reduce the GHG emission by 45% by 2035



Thank you!

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