



PETRONAS

PETRONAS New Energy

BURSA STRATUM FOCUS SERIES XI
Renewable Energy – A Genesis for a Sustainable Future
6-Apr-2021

Dr. Jay Mariyappan

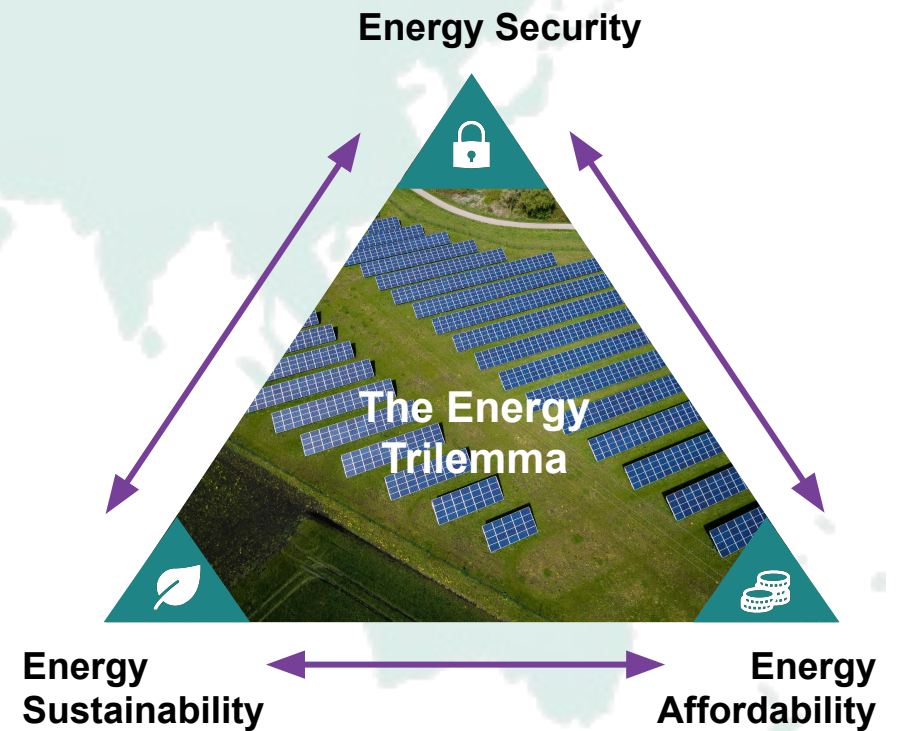
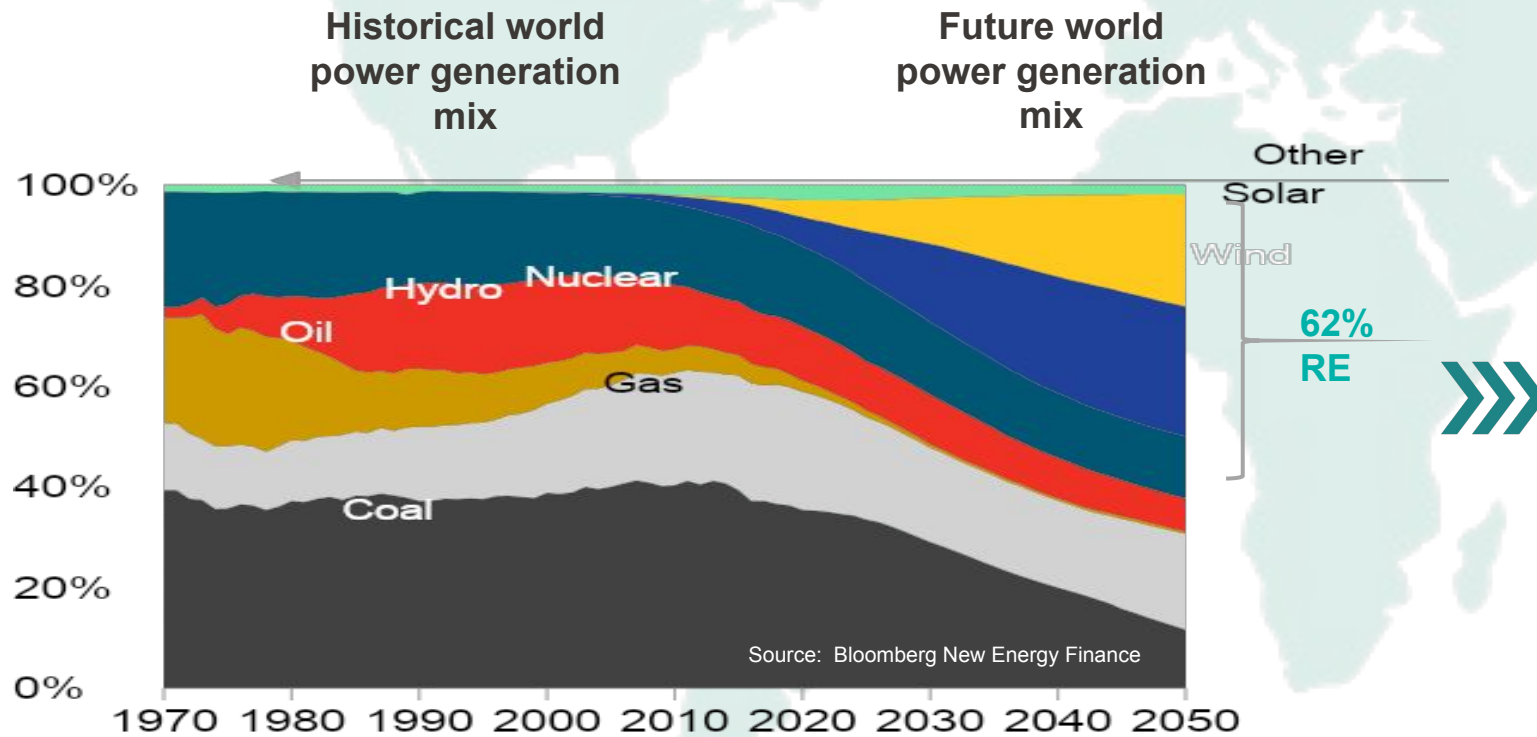
Head, PETRONAS New Energy

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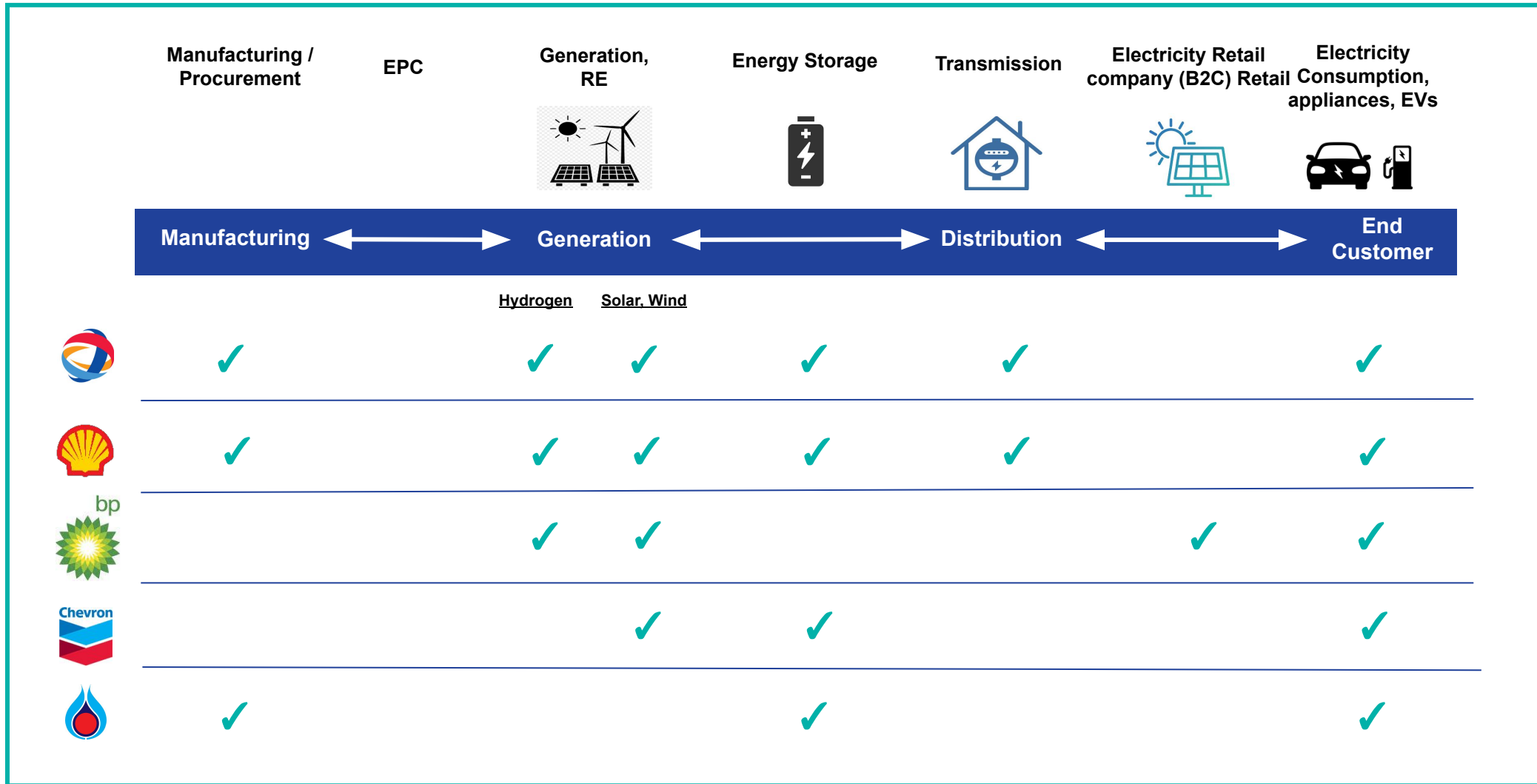
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The Energy Transition is upon us

The world is facing a shift in its Energy Mix with a growing contribution of 62% from Renewable Energy moving forward...

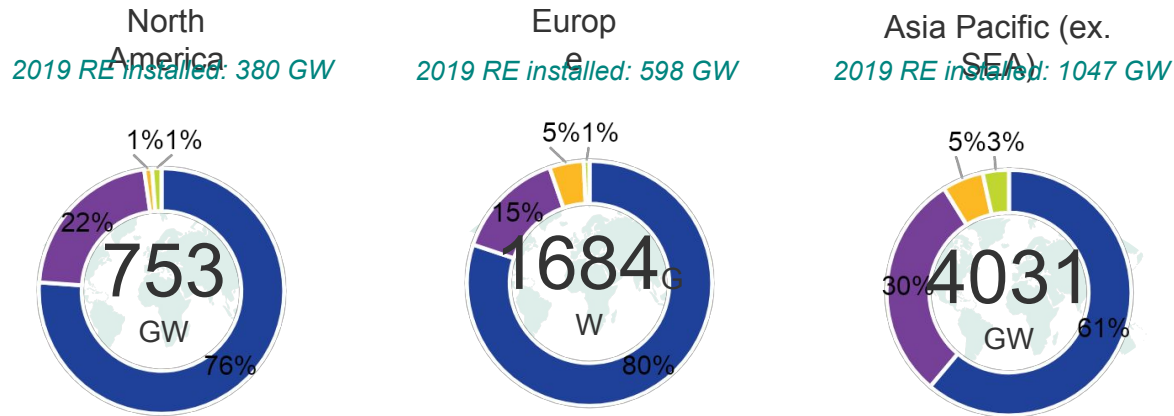


O&G majors' venture into RE increases overall industry competitiveness

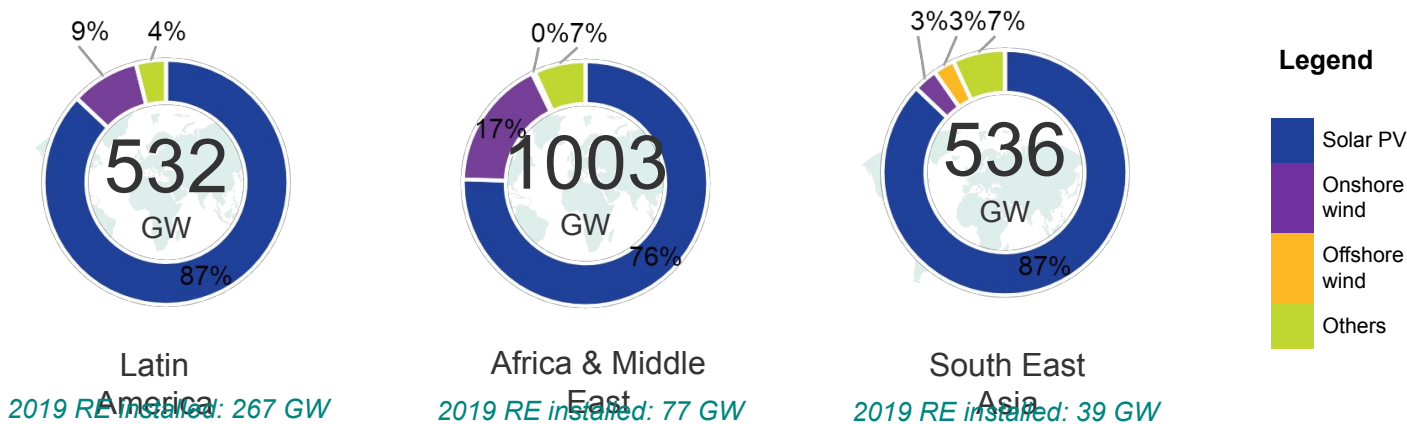


Asia Pacific is projected to lead RE industry growth

Renewables capacity additions outlook 2019-2050



Source: Bloomberg New Energy Finance



Insights

- China is projected to have the largest RE installed capacity at 2050 (~2,550 GW), where 45% of the renewable mix is Solar PV.
- India is the second largest at 1,828GW (63% Solar PV), with favorable policies and openness to investment
- Growth in SEA countries are driven by the government's push towards RE in the energy mix
- Malaysia has announced an RE target 20% of energy mix in 2025, which amounts to ~6GW (4.5GW Solar)

PETRONAS is committed to achieve Net Zero Carbon Emissions by 2050

**NET
ZERO**
2050

PETRONAS Sustainability Agenda



We focus on pivoting our portfolio in support of energy transition



PETRONAS 'Stepping Out' Strategy into Renewable Energy

2019: New PETRONAS Statement of Purpose

A progressive energy and solutions partner enriching lives for a sustainable future

Formation:

- ❖ Solar & Wind business
- ❖ Hydrogen business
- ❖ Venture Capital focusing on New Energies

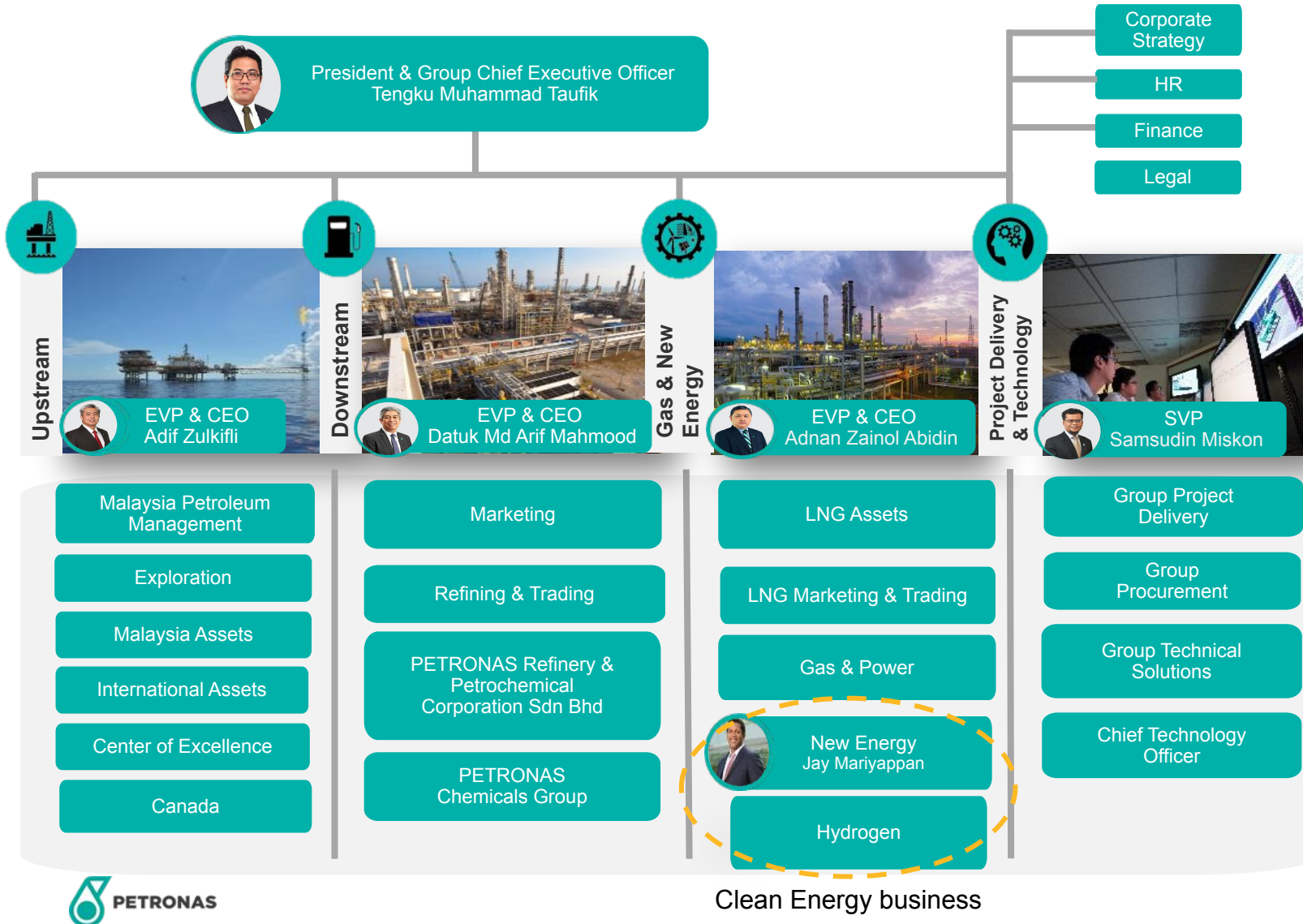
Acquisition:



A member of PETRONAS group

Overview of PETRONAS Group

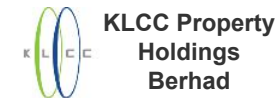
Customer focused business segments for strategic execution



Leadership & Capability Development



Others



PETRONAS New Energy focuses on solar & wind energy

Mode: Company / Asset / Pipeline Acquisition & Greenfield Development

Distributed Energy



- C&I
- Residential

Solar

Large Scale Solar



- C&I
- Utility



Customers

Onshore Wind



- C&I
- Utility

Wind

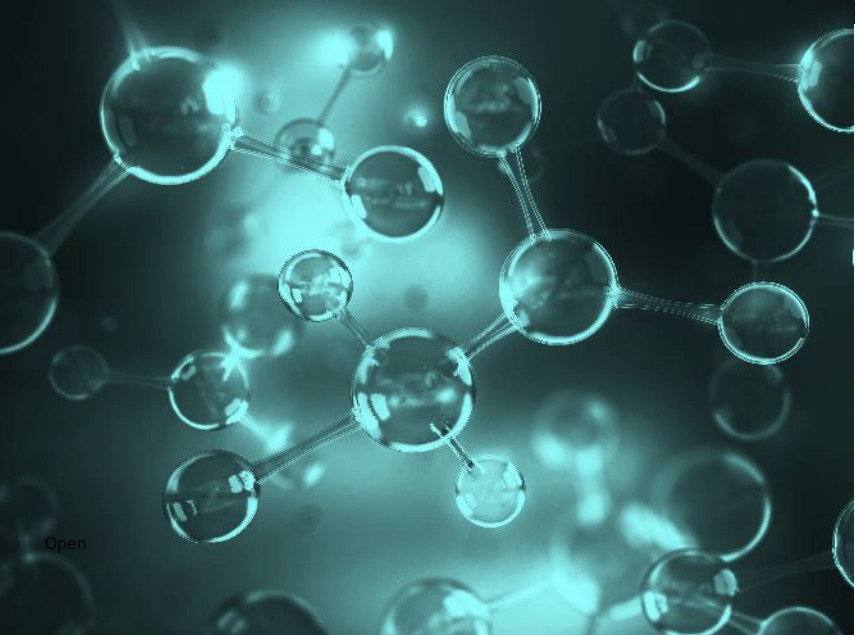
Offshore Wind



- Utility

Flexible Generation – Solar / Wind / Storage etc.

Our venture into the hydrogen business is to propel PETRONAS towards creating a sustainable future through cleaner energy



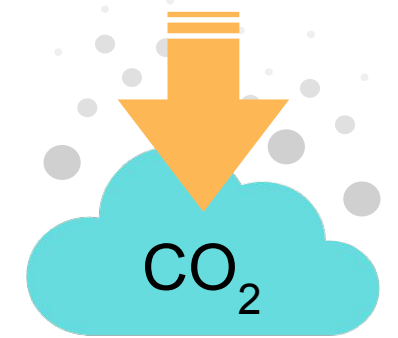
A progressive energy and solutions partner, enriching lives for a sustainable future



Creates a sustainable future with complementary cleaner energy



Provides green solutions to our partners



Supports PETRONAS' Net Zero Carbon Emission ambition by 2050

....driven by the collective moves that promote Hydrogen as a clean energy



Supportive policies

Countries introduced supportive policies, incentives and roadmaps



Versatility of Hydrogen

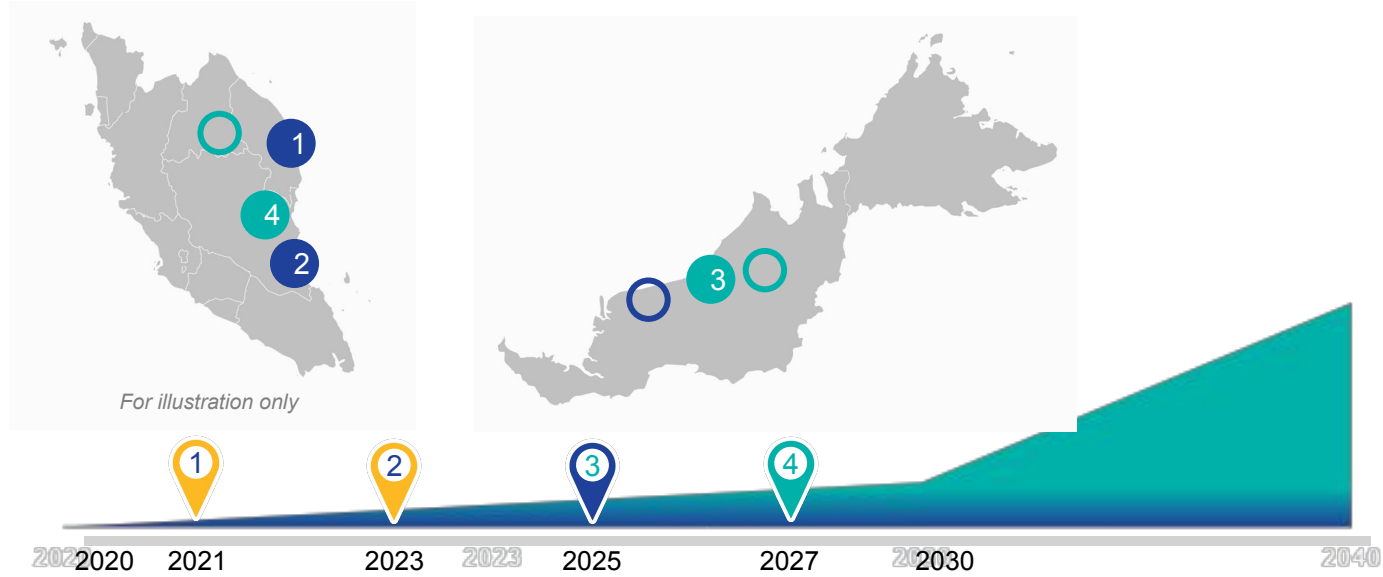
Hydrogen used as energy carrier, feedstock, power, heat & mobility



Ready technology & falling costs

Matured tech. on SMR & CCS, large scale electrolyser, fuel cell costs have halved in 5 years

PETRONAS can produce both blue and green hydrogen for our partners and customers responsibly



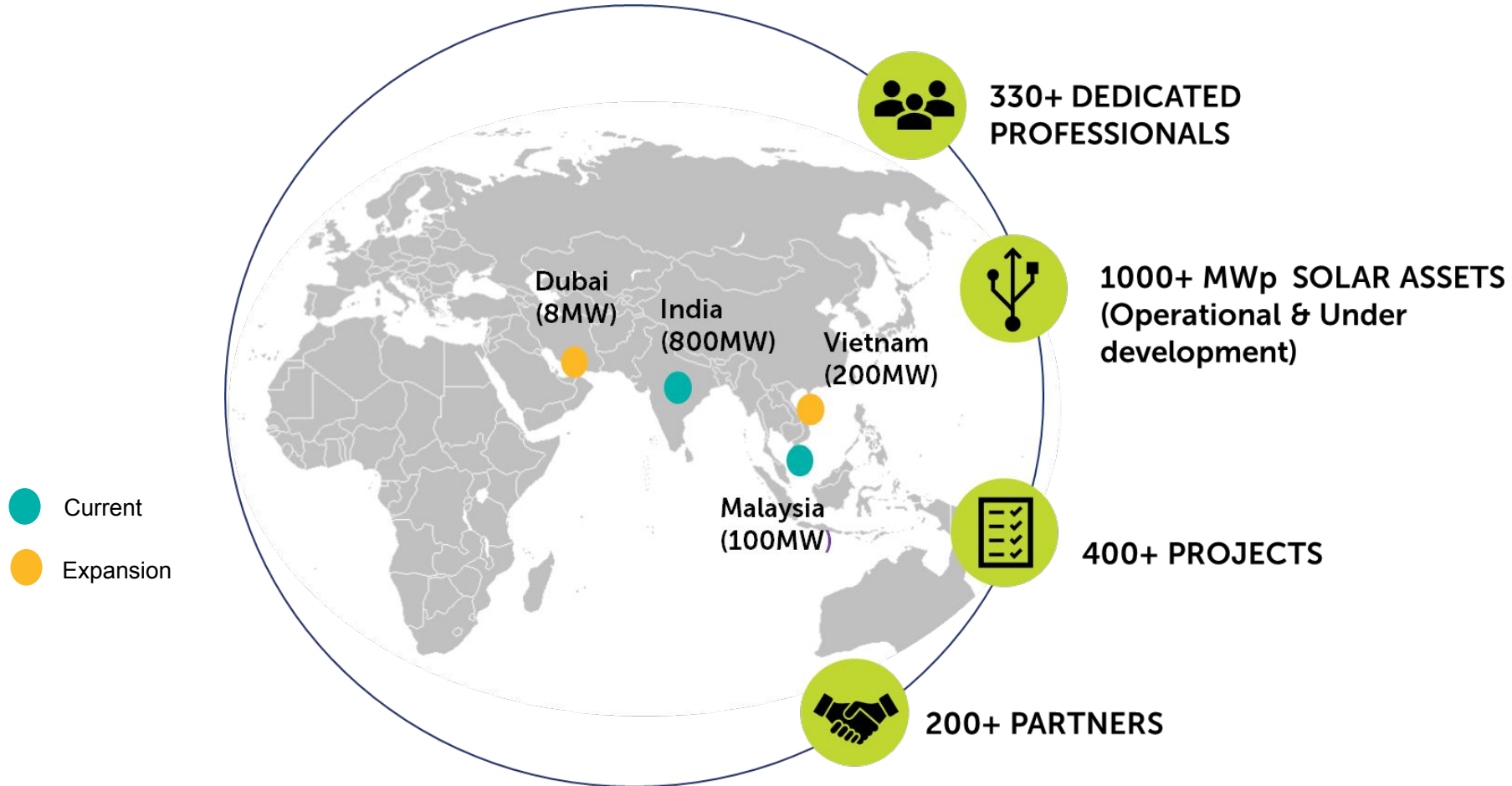
H₂
Blue Hydrogen

- Production of co-product low carbon hydrogen
- Hydrogen can be transported in ammonia form or as per customer's requirement
- Supply from peninsular Malaysia with ready facilities and resources

H₂
Green Hydrogen

- Working with partners to produce green hydrogen from renewable energy (hydro)
- Hydrogen can be transported as per customer's requirements
- Supply from peninsular Malaysia and east Malaysia

Today, we are an established RE player with a large portfolio of distributed assets



Major Clients



We offer customised end-to-end solar solutions based on your needs

Customised Solar Solutions for C&I



A member of PETRONAS group



ON-SITE SOLAR



OFF-SITE SOLAR



BATTERY STORAGE & HYBRID SOLUTIONS



HAWK AI ENERGY & DATA MONITORING SOLUTION

Customised Solar Solutions for Residential



EV Solutions



In Malaysia, we have 90MWp of solar assets in operation and under development

PETRONAS New Energy has various types of clients :
Utility Companies, Hypermarket, Fabrication Yard, Offices, Research Complex, University etc.

TESCO Phase 1
15 Sites with total capacity of about
13MWp

Gebeng Solar IPP



Suria KLCC



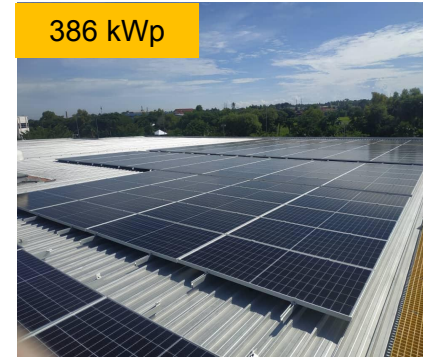
TESCO Mergong



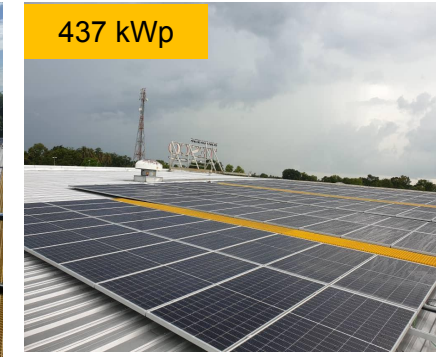
TESCO Bukit Puchong



TESCO Stargate



TESCO Jitra



PETRONAS Research, Bangi



PETRONAS Gas, Seremban



PETRONAS Stations



MMHE



UTP



PRPC – Phase 1



In India, we operate the largest Open Access Solar Farm

India's largest single location Open Access Solar Farm

Customers from Veera

ABB



Honeywell

Qualcomm



The Renewable Energy market in Malaysia is growing



Growth



Sizeable opportunity of RE to support Malaysia 20% RE Energy Mix



Policy



Policy adoption opportunity from lessons learnt in advanced markets



Collaboration



Collaboration development opportunity within Malaysia, and beyond

Lets
Collaborate!

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