



Aspires to be  
ASEAN's leading  
provider for  
**D**ecarbonisation  
solutions...



# Introduction to Asia Carbonx Change



## Demystifying Sustainability



- 36 years of service with Tenaga Nasional Berhad.
- Retired as MD for TNBX.
- Pioneered mRECS and MGATs framework in Malaysia.
- Launched Green Energy Tariff (GET) in Dec 2021.
- Utility lead for RE ACT 2011.
- Pioneered SuriaShield Insurance
- Regional Speaker on Renewables.

STARBUZ, THURSDAY 26 APRIL 2021



### Demystifying sustainability

Malaysia has an abundance of renewable energy (RE) resources, particularly in the form of solar, mini hydro, biogas and biomass. Despite the country's potential to generate RE, progress has been painfully slow in transitioning to a more efficient and sustainable energy mix due to several reasons.

This is where strong political will and actions are needed to wean off populist policies, namely, subsidies, which are counter-productive in the long-term. The price subsidy mentality is killing us and we cannot afford to be affirmative only during a bank of collapse.

Malaysia needs to bite the bullet! This is the need of the hour.

It is imperative that the Environment and Climate Change Ministry and the Energy Ministry revisit current policies and the regulatory framework and

## Political will needed to address RE challenges

By implementing a carbon tax regime, the government can incentivise companies to invest in RE projects, particularly in the solar, biogas and biomass sector, which are readily abundant in Malaysia.

The use of these resources can help reduce waste and promote sustainable waste management practices in the country benefiting particularly our palm oil industry directly.

One of the main challenges in adopting RE sources is the initial high cost of installation and maintenance. Biogas and biomass power plants require significant investment, making them less attractive to investors compared to fossil fuels.

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10 Viewpoint



### Demystifying sustainability

I am highly elated by the joint announcement of the Ministry of Natural Resources, Environment and Climate Change (NRECC) and the Ministry of Energy in addressing the Renewable Energy (RE) challenges plaguing Malaysia with the lifting of the RE target and RE export ban.

Indeed, I shared some of these challenges in my previous column in The Star on April 25, 2021 and the need of the hour for Malaysia to bite the bullet.

Rudes to the NRECC and the Ministry of Energy for their political will, foresight and commitment in ensuring a sustainable future for our next generation with this strategic development and cross border trade policy for RE!

Sharing some facts on why such a policy is necessary and required.

... Malaysia's Fourth Biennial

## Future-proofing the electricity grid

Malaysia stands to gain exponentially with the upliftment of RE target and RE export ban.

Grid/year	2017	2018	2019
Perlis	0.776	0.807	0.780
Selangor	0.513	0.520	0.527
Sarawak	0.213	0.193	0.222

Note: Compared to our Asian neighbours, Singapore reports a EEF of 0.267, Indonesia reports a EEF of 0.557, CO2/MWh and Indonesia reports a EEF of 0.528.

... In the present Corporate Green Power plant could be further modified to include inverters like the contracting of a solar plant should be limited to within 50km (cross, right) of the corporate buyer thus localising the solar generation, giving more local opportunities and creating an

6 Viewpoint



### Demystifying sustainability

The Natural Resources, Environment and Climate Change (NRECC) Minister, Nk Nazmi Nik Ahmad, reiterated that the expansion of renewable energy (RE) will be further expanded based on the concept of self-contained systems (SCS) spur increased investment along the RE value chain and to diversify RE programmes based on a willing buyer, willing seller approach.

This will help accelerate greater corporate sector involvement in the RE market.

The NRECC stated in the United Nations Environment Programme (UNEP) report that the climate action for Peninsular Malaysia stood at 0.76 total carbon dioxide credit per megawatt hour.

## The journey to grid decarbonisation

taking in developing indigenous resources like hydro, biogas and biomass with low FIT support prices, support mechanism and an industry-led technical and economic issues related to the integration of distributed generation into the existing power grid.

These are limited interconnection points as seen during the initial rollout of the corporate green power purchase (CGPP) programme with southern states having practically none.

Grid connectivity is solely under the purview of the Malaysian government projects using our indigenous fuel - hydro, biogas and biomass - economically sustainable as compared with solar.

... Here are some alternative uses for the funds where some activities are already undertaken by NRECC and the Sustainable Energy Development Authority (Seda).

Insight 5

**Webinar for RPVIs**  
Supply Agreement for Renewable Energy For NEM NOVA (Rebate by RPVI)

**SPEAKERS:**  
Ir. Nirinder Singh Johal  
Pn. Sharifah Salwah Syed Othman

17.11.2021 | WEDNESDAY  
10 am - 11 am  
001-6316

## Launching of GETs



**POWERGEN ASIA**  
Asian Utility Week

**SMART NATION**  
ACCELERATING THE DIGITAL ECONOMY

**CONFERENCE SPEAKER**  
IR. NIRINDER SINGH  
Managing Director  
TNBX Sdn Bhd

**CORPORATE ANNOUNCEMENT**

TNBX inks agreement with Allianz General, Anora to offer SuriaShield to Solar PV users

**MAJLIS MENANDATANGANI**  
**MEMORANDUM PERSEFAHAMAN (MOU)**

JKR, TENAGA NASIONAL, Better. Brighter.

PROGRAM BERTUKAR KEHILIRAN

**MAJLIS MENANDATANGANI MEMORANDUM PERSEFAHAMAN (MOU)**

DBKL inks deal for installation of solar photovoltaic systems | The Star

**MEMORANDUM OF UNDERSTANDING (MOU)**  
SIGNING CEREMONY BETWEEN  
SIME DARBY PROPERTY & TNBX

Objective:

To assist your Organisation  
monetize the RE MWh generated into  
Tradeable Renewable Energy Certificates (RECs)

**ASIA**  
No LLP 0030470LGN  
**CARBONX CHANGE PLT.**



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## Content

1. Introduction to RECs via video and relationship to Green House Gas (GHG)
2. Understanding the Process Flow , Role & Responsibility of Market Participants.
3. Basis of selection of  THE INTERNATIONAL REC STANDARD
4. Different type RE Connectivity and understanding Role and Responsibility of RE Asset Owner and Site Owner

A simple 240 secs  
video to understand  
the production of  
Green Energy and the  
development of RECs



[ACCP Video](#)

Other sites :

<https://youtu.be/opJMrzNauFQ> – REC as explained in US

<https://youtu.be/sTvqlijvTg> - Green House Gasses

[https://youtu.be/-D\\_Np-3dVBQ](https://youtu.be/-D_Np-3dVBQ) – GHG - Infographics



1. Understanding Green House Gas and its relationship to REC's.

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# Understanding Green House Gases and the 3 scopes

Double Edged Sword:  
Need to mitigate with both  
Energy Efficiency and  
Renewable Energy solutions

## Mitigation Routes

### Energy Efficiency

- Energy management
- Reduction in energy cost (up to 30%)
- Reduce Scope 2 GHG emissions from electricity

### Renewable Energy (via SELCO or NEM )

- Reduction in energy cost (up to 20 % or more)
- On-site direct reduction of Scope 2 GHG emissions from electricity
- Green Energy Cert obtained

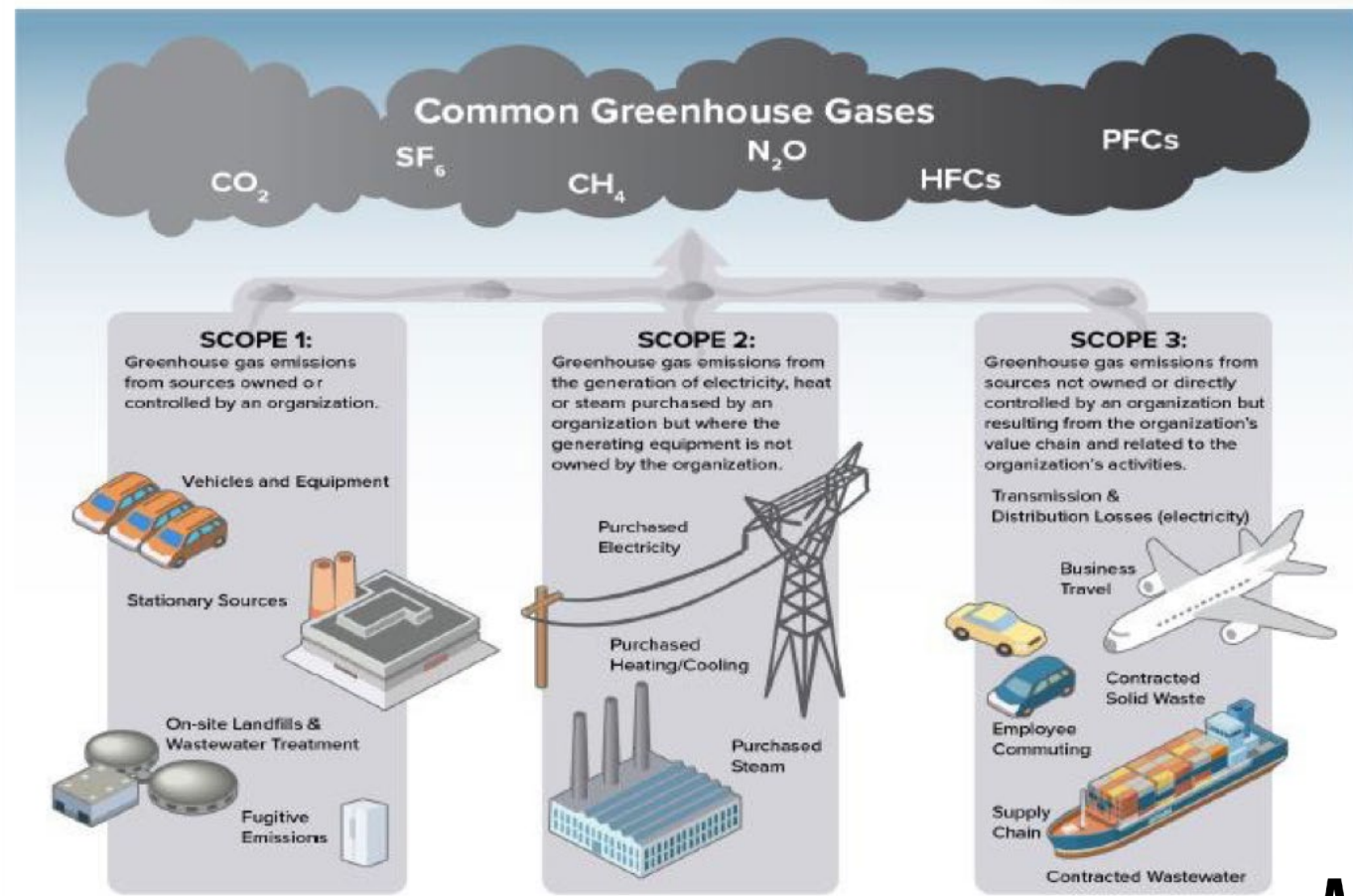
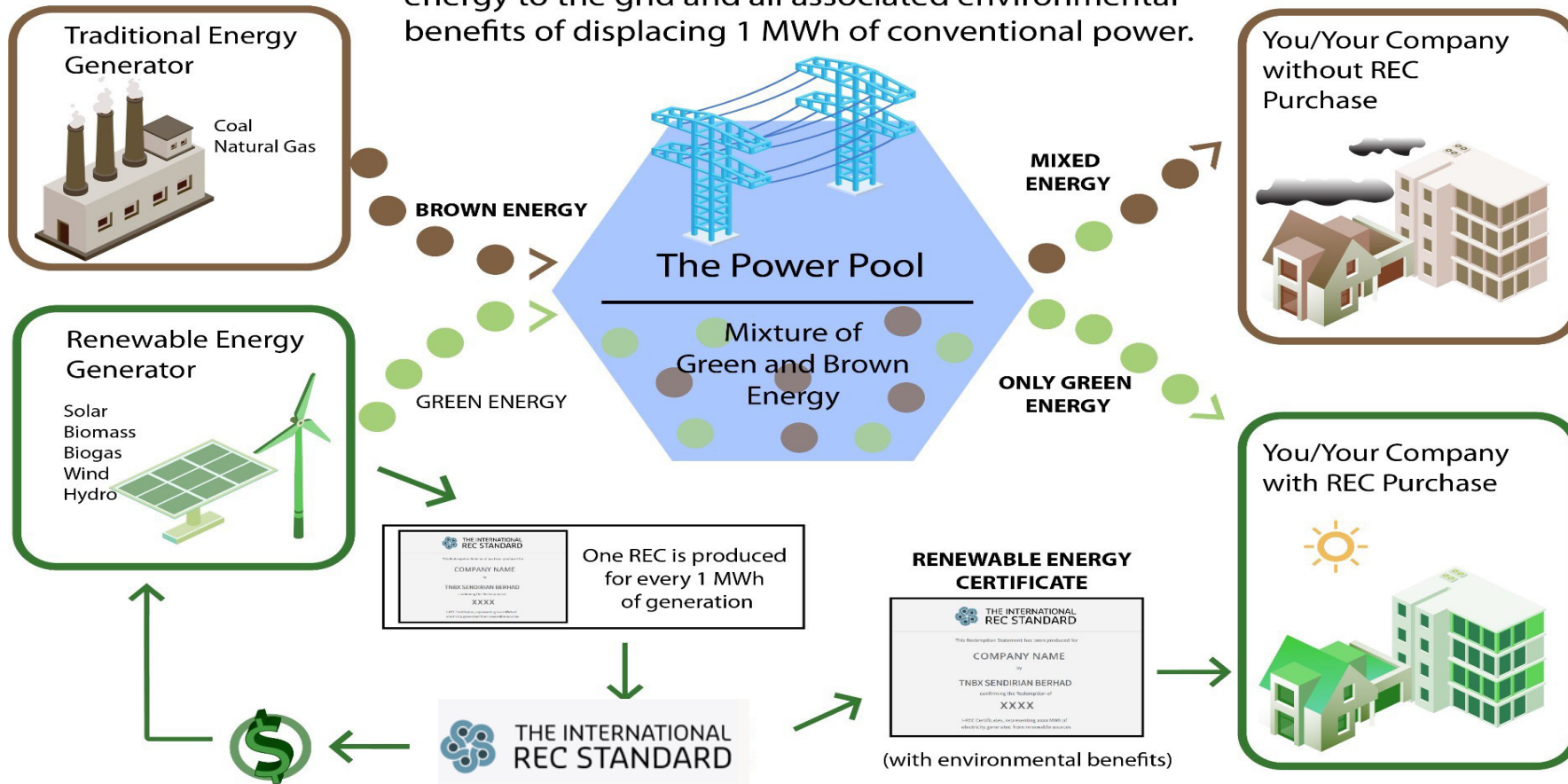


Figure 1. Common Sources of Emissions by Scope

# Do we really understand how a REC is created?

Consumers use RECs to address SCOPE 2 emissions

A REC represents delivery of 1 MWh of renewable energy to the grid and all associated environmental benefits of displacing 1 MWh of conventional power.





# What is a Renewable Energy Certificate (REC)?

Remember  
1 MWh = 1 REC



- Tradable, market-based instrument that represents renewable electricity generation



- Only the owner of the REC can claim the environmental benefits of the clean energy production



- Enable anyone, anywhere, switch to renewable energy



- RECs provide green power options in areas that may not be suitable for renewable resources, allowing renewable facilities to be located where they are the most efficient

# REC makes it easier for companies to source Renewable Energy

## RE100

RE100 is a global initiative bringing together the world's most influential businesses committed to 100% renewable electricity.

Led by the Climate Group and in partnership with CDP, our mission is to accelerate change towards zero carbon grids at scale.



CDP supports thousands of companies, cities, states and regions to measure and manage their risks and opportunities on climate change, water security and deforestation.



ACCP certificates are registered with I-REC, in which the I-REC registry is approved and recognised by all major standards and companies...(CDP, RE100)

# Recognise one of them? Do you aspire to join them?

Malaysian Based



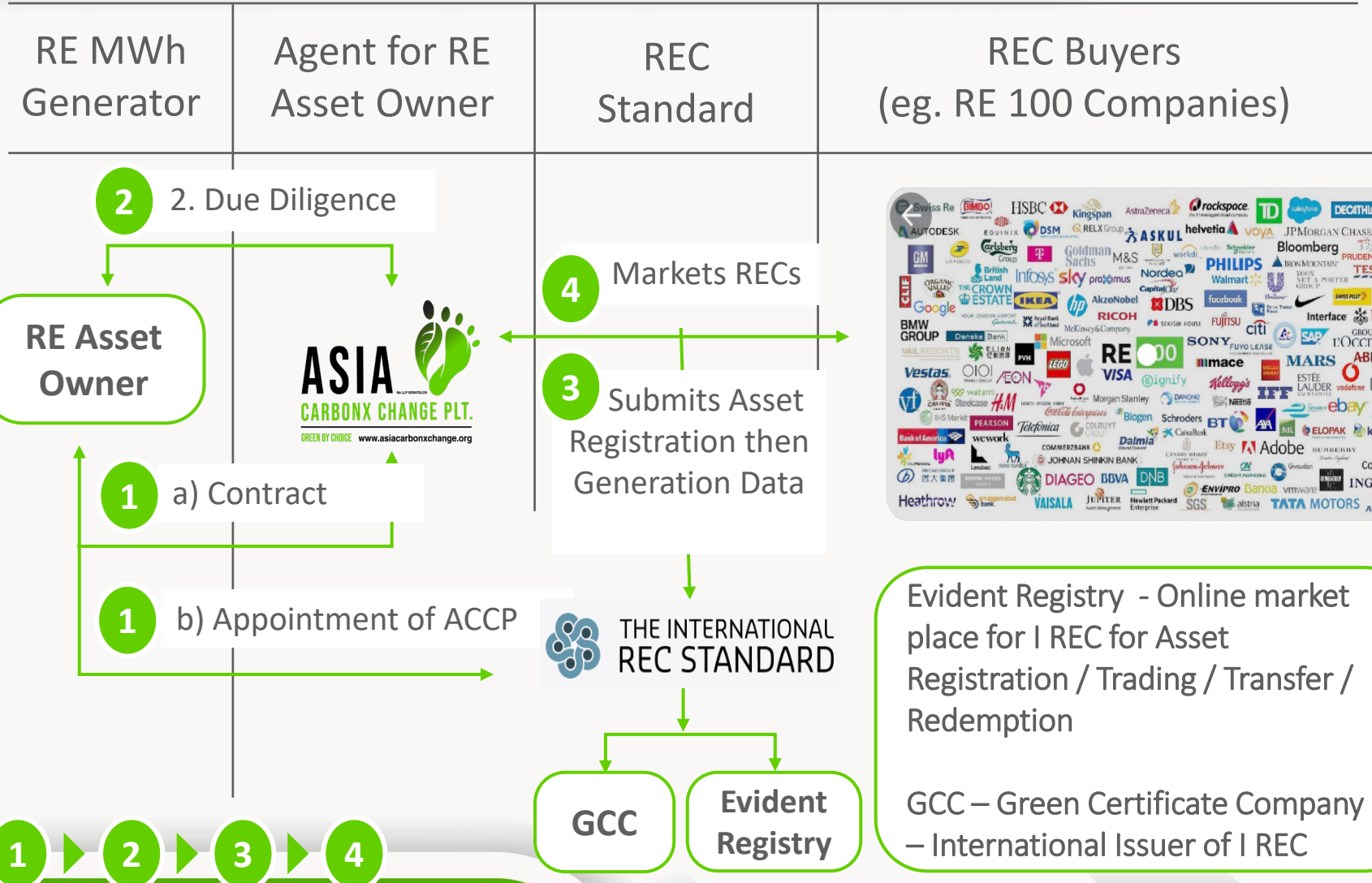
# Our Customers



## 2. Understanding the Process Flow, Role & Responsibility of Market Participants.

# Renewable Energy Plant Registration

## The Process Flow and Role of Players



Step	Activity	Timeline
1a	Appointment of ACCP via accepting the Term Sheet.	These is dependent upon RE Asset Owner
1b	Ownership Declaration to Evident by RE Asset Owner	and timeline starts after this is executed.
2	Dues diligence by ACCP	2 days (Based on document submitted as per check list )
3	Submission and approval	4 – 6 weeks – Under GCC (UK)
4	Registering The Generation and creating RECs and marketing them	6 weeks to find suitable buyer on Spot market Marketing .
Wait for Next Qtr to Generate new RECs.		

3. Basis of selection of



THE INTERNATIONAL  
REC STANDARD

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# Presently, I-REC dominates both Domestic and ASEAN Markets

83 % of ASEAN MARKET by I RECS

- I-REC leads over other registries in ASEAN
- RECs allow all energy users to make a conscious and evidence-based choice for renewable electricity.



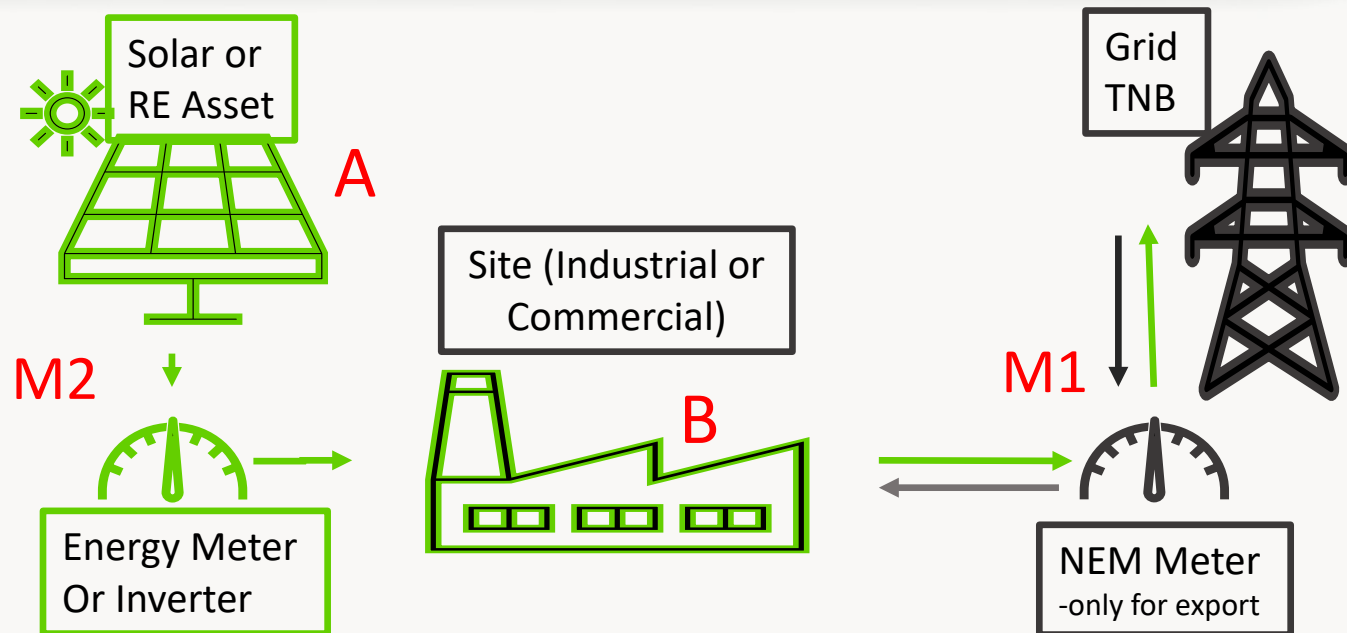
**Table 1: RE Assets Info Registered in TIGR & I-REC Registries by ASEAN Countries**

Country	I-REC Registry [10]			TIGR Registry [11]			Total	
	No. of Assets	MW	RE Source	No. of Assets	MW	RE Source	No. of Assets	MW
Vietnam	68	2,326.09	Hydro, Solar, Wind	4	134.00	Solar	72	2,460.09
Thailand	76	1,641.04	Biogas, Biomass, Geothermal, Hydro, Solar, Wind	1	35.00	Biomass	77	1,676.04
Philippines	7	939.86	Geothermal, Hydro, Solar	3	302.25	Geothermal, Solar	10	1,242.11
Indonesia	25	897.24	Geothermal, Hydro, Solar, Wind	4	144.72	Geothermal, Solar	29	1,041.96
Singapore	18	29.47	Biomass, Solar	170	562.95	Solar	188	592.42
Malaysia	30	540.07	Biogas, Biomass, Hydro, Solar	3	36.00	Hydro, Solar	33	576.07
<b>Total</b>	<b>224</b>	<b>6,373.77</b>	<b>N/A</b>	<b>185</b>	<b>1,214.92</b>	<b>N/A</b>	<b>409</b>	<b>7,588.69</b>



#### 4. Different type RE Connectivity and understanding Role and Responsibility of RE Asset Owner and Site Owner

# Determination of REC ownership between A (RE Asset Owner ) and B ( Site Owner)



- A** – Solar other RE Asset
- B** - Site
- M1** – Utility Meter
- M2** – Energy meter / Inverter

	RE Asset	Site Owner	REC's claim	Declaration required
1	A	B	A	<ol style="list-style-type: none"> <li>1. Via PPA Declaration</li> <li>2. A - Declaration of ownership</li> <li>3. Inform B (prudent)</li> </ol>
2	B	B	B	<ol style="list-style-type: none"> <li>1. Can SELCO RECs</li> <li>2. B intend to sell its RECS, declaration to IREC in ownership declaration..</li> </ol>

Noted : The total RECs are the RE Generation from M2 or from Inverter.

In all cases – ACCP acts on behalf of the either party as market Registrant and Participant. The REC owner passes the rights of the environmental attributes to ACCP for it to register the asset and trade the RECs..

# How is the amount of Carbon by REC calculated?

Note: As the general rule, the emissions reductions from mitigation actions such as renewable energy (renewable electricity) and energy efficiency are quantified based on the emissions avoidance from displacing and/or reducing the consumption of grid-electricity. In this regard, three regional grid electricity emission factors were respectively used in 2017, 2018, and 2019

	tonnes CO2/MWh		
Grid/year	2017	2018	2019
Peninsula	0.776	0.807	0.780
Sabah	0.513	0.520	0.527
Sarawak	0.213	0.193	0.222

Sample of approximate calculations of CO2 Offset:

Customer Purchaser : 100,000 RECs or 100 k MWh

Approx CO2 is = 100,000 MWh x 0.780 tonne CO2 /MWh

= 78,000 tons of CO2(e)

Emission factors are generally based on the Energy Grid Mix where the asset is connected.



# Call to Action

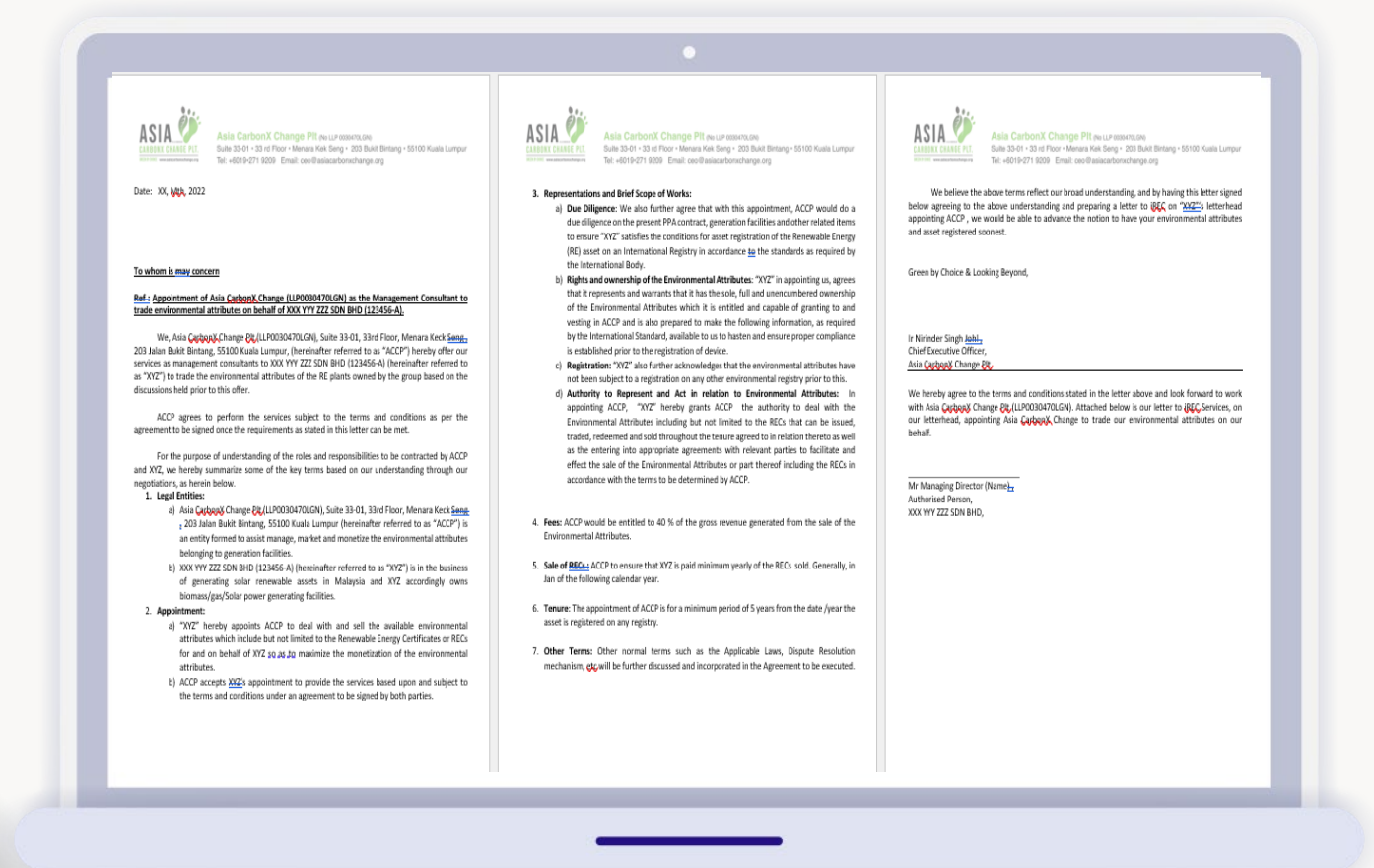
The first step would be to contact us for a pre due diligence audit at NO COST via e signing a Letter of Appointment (LOA) with any agreed terms and conditions as identified.



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Thank You



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# Additional Info Slides



[maybank-invests-in-mrecs-to-offset-carbon-emissions](#)

GREEN ELECTRICITY TARIFF



[Green Electricity Tariff](#)



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