



**Understanding
Environmental Attributes
An Overview for Vietnam**

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OVERVIEW

- **Environmental attributes**
- **Market types and reporting**
- **Action items for stakeholders in Vietnam**



ENVIRONMENTAL ATTRIBUTES



UNDERSTANDING ENVIRONMENTAL ATTRIBUTES

An environmental attribute...

- Measures the impact of an activity on the environment

An energy attribute certificate (EAC)...

- Represents all environmental attributes of 1 MWh of renewably generated power
- Gives a serial number and makes it unique
- **Allows you to track, own, and trade renewables**
- Has many names : REC, GoO, EAC, etc.





REGISTRIES ARE...

- Platforms that allow stakeholders to “generate”, ”transfer”, and “retire” EACs.
- A single portal for all transactions, similar to an online bank account.

Account Holder Company	Asset ID	Asset Name	Nameplate Capacity (MW)	Country	Subdivision	Multi-Fuel Indicator	Fuel Type	Commence
Sembcorp Utilities Pte Ltd	GEN1010	Solar PV System - APB Singapore	2.197	Singapore	South West	No	Solar Photovoltaics	09/20/20'
Sembcorp Utilities Pte Ltd	GEN1011	Stolthaven Singapore Pte Ltd - Solar PV System	0.138	Singapore	South West	No	Solar Serving On-Site Load	12/16/20'
Sembcorp Utilities Pte Ltd	GEN1019	SASCO - ST Aero	2.062	Singapore	South East	Yes	Solar Photovoltaics	01/31/20'
Sembcorp Utilities Pte Ltd	GEN1019	SASCO - ST Aero	2.062	Singapore	South East	Yes	Solar Serving On-Site Load	01/31/20'
Sembcorp Utilities Pte Ltd	GEN1020	STAE - ST Aero	2.030	Singapore	North East	Yes	Solar Photovoltaics	03/27/20'
Sembcorp Utilities Pte Ltd	GEN1020	STAE - ST Aero	2.030	Singapore	North East	Yes	Solar Serving On-Site Load	03/27/20'
Sembcorp Utilities Pte Ltd	GEN1029	Tuas - 3M innovation Singapore	2.180	Singapore	Central Singapore	No	Solar Photovoltaics	05/30/20'
Sembcorp Utilities Pte Ltd	GEN1030	O1 - Changi Mega Solar	3.611	Singapore	South East	Yes	Solar Photovoltaics	04/01/20'
Sembcorp Utilities Pte Ltd	GEN1030	O1 - Changi Mega Solar	3.611	Singapore	South East	Yes	Solar Serving On-Site Load	04/01/20'
National Environment Agency	GEN1022	Tengoh Floating Test-Bed - Tengoh Floating Test-Bed	0.817	Singapore	North West	No	Solar Photovoltaics	11/09/20'
Monsoon Carbon Pte Ltd.	GEN1051	Phase 1 and 2 - Dam Nai Wind Farm Phase 1 and 2	39.400	Viet Nam	Ninh Thuân	No	Wind	11/20/20'
LYS Offset Solutions Pte. LTD.	AGG1014	LYS Industrial Solar One - LYS Genco Alpha	0.579	Singapore	Central Singapore	No	Solar Photovoltaics	01/22/20'

TIGRs Registry Buena Vista - Tuncaj S.A.

Project Description

Solar resource energy project located in the eastern side of Guatemala in the department of Jutiapa, with a 1.5MW generation capacity installed which began operation on august 30, 2017. The project provided local development during construction.

Project Details

Registry	TIGRs
Project Name	Buena Vista - Tuncaj S.A.
Registry ID	GEN1024
Technology	Solar Photovoltaics
Nameplate Capacity (MW)	1.5
Project Online Date	September 1, 2017
Country	Guatemala
Region	Jutiapa
Account Holder	ALLCOT AG

LIFECYCLE OF AN EAC (simplified)

Renewable energy project generates power and creates an account in an EAC registry

Project owner provides documents to verify number of MWh generated, and the registry issues EACs into their account.

Project owner sells EACs to a buyer, and the buyer uses (“retires”) or resells (“transfers”).

Project owner uses (“retires”) EACs for their own sustainability portfolio.

TRANSACTION TYPES

Transaction	Actions	Rational
Attribute only (unbundled)	<ul style="list-style-type: none"> • Project generates renewable power and issues EACs • Company buys EACs to offset conventional power 	<ul style="list-style-type: none"> • Access RE anywhere
Green Power (bundled)	<ul style="list-style-type: none"> • Retailer (utility) generates EACs or buys them. • Resells EACs + power, at a premium. 	<ul style="list-style-type: none"> • Simplify RE procurement
Onsite	<ul style="list-style-type: none"> • Project generates renewable power and issues EACs • These can be used by the owner, or sold separately 	<ul style="list-style-type: none"> • Report consumption OR • Generate revenue
PPA (all types)	<ul style="list-style-type: none"> • Contract for power and attributes establishes terms • Project generates renewable power and issues EACs • Developer and buyer settle attributes in a registry 	<ul style="list-style-type: none"> • Establish ownership • Report consumption

WHY THE INDUSTRY USES EACs AND REGISTRIES



Proof of generation and ownership

- Enable unique claims of ownership
- Protection against double counting
- Third party verification
- Ease of tracking

Reporting and transparency

- Makes “green” claims credible
- Required by most voluntary and compliance reporting frameworks, including RE100 and the GHG Protocol
- Compliance, in compliance markets

MARKET TYPES AND REPORTING



MARKET TYPES

Voluntary Markets

- Use of renewables is optional
- Guided by best practices

Compliance Markets

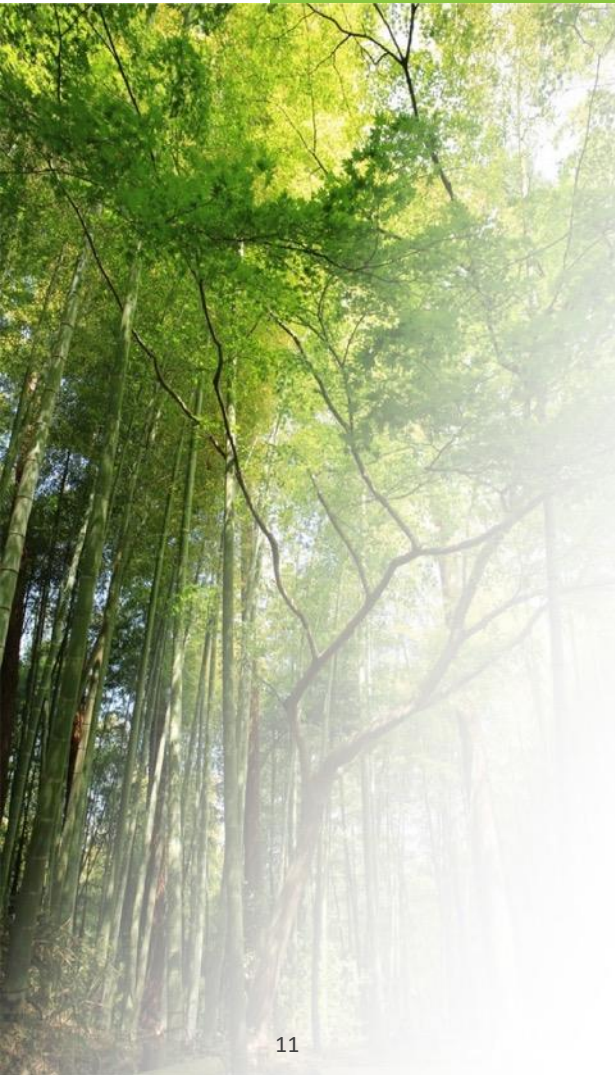
- Government requires use of RE
- Guided by policy and regulation

Commonalities

- Track generation with EACs
- Voluntary + Compliance



REPORTING: RULES AND BEST PRACTICES



What are the rules?

- Where (and when) your renewables come from
- How you source (PPAs, onsite, bundled, unbundled)
- How you track and report on your renewables

Who sets the rules?

- International frameworks and initiative, including: The GHG Protocol, RE100, SBT-i, CDP, and others
- In compliance markets, the government sets the rules, typically in line with the above and in addition to domestic targets

VIET NAM, PRESENT AND FUTURE



Market structure

- Currently an active voluntary market
- Discussion of moving to compliance market
- Philippines as an example of “sister-markets”

Registries and EACs

- International registries are currently available to support tracking and EAC purchases in Vietnam
- Registries are equipped to support Vietnam in enforcing a compliance market, OR transitioning to a domestic platform.

ACTION ITEMS

For stakeholders in Viet Nam



SUGGESTIONS FOR COMPANIES IN VIET NAM

Power Purchase Agreements

- **Contract should specify** sale of power and “all associated environmental attributes”
- Parties to the contract **should issue, transfer, and retire EACs periodically,** in an established registry
- Ask your lawyer about **“future proofing” your contracts**



SUGGESTIONS FOR COMPANIES IN VIET NAM

Tracking power and using EACs

- **Use registries compliant with** the GHG Protocol reporting criteria, RE100's "Making Credible Renewable Electricity Usage Claims" document, and ideally endorsed by CDP and other bodies
- Purchase from a **year and location as close as possible** to your power consumption
- Review and **optimize the balance between** onsite, PPAs, bundled, and unbundled attributes.
- **Be transparent** about how you source where you do it. and



FURTHER READING

- The Greenhouse Gas Protocol, Scope 2 Guidance: https://ghgprotocol.org/sites/default/files/ghgp/standards/Scope%20%20Guidance_Final_0.pdf
- RE100's frequently asked questions: <http://there100.org/faqs>
- RE100's Making credible renewable electricity usage claims: <http://media.virbcdn.com/files/d2/f9ea6f41ca833f44-RE100CREDIBLECLAIMS.pdf>
- RE100's Technical Criteria [for renewable power]: <http://media.virbcdn.com/files/73/4c55f6034585b02f-RE100TechnicalCriteria.pdf>
- The TIGRs Registry [for tracking PPAs and buying/selling EACs]: <https://apx.com/tigrs-overview/>

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