



# Research Study on Voluntary Renewable Energy Market

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October 2022

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## Executive Summary

The world is currently transitioning towards clean energy to address environmental issues related to climate change and greenhouse gas (GHG) emissions. Through the voluntary renewable energy (RE) market program, a wide range of industry players from large organizations to small-scale end-users and individuals can now contribute and support the clean energy transition by purchasing RE.

For every 1-megawatt hour (MWh) of generated electricity from a renewable energy source, one energy attribute certificate (EAC) is also created which represents both the physical energy delivered and its associated environmental attributes. These EAC are important instruments used within the context of renewable energy market (REM) either for compliance with a mandatory renewable portfolio standard (RPS) requirement in the compliance market or for claiming the use of RE in the voluntary market such as to demonstrate environmental leadership.

As part of market development, the Philippine Electricity Market Corporation (PEMC) initiated this study to identify features of existing voluntary RE market in other jurisdictions, particularly in the USA and Europe region. The key features identified are summarized into four main components as follows:

1. Energy Attribute Certificate (EAC)
  - Guarantee of Origins (GO) – primarily used by the European Union’s (EU) energy markets.
  - Renewable Energy Certificate (REC) – primarily used in the USA and Canada.
  - International REC Standard (I-REC) – used in other parts of the world where green energy certification systems do not exist yet.
2. Renewable Electricity Purchasing Options
  - Retail Supply Options – generally involve short-term commitments by the consumer to purchase a pre-determined volume or a volume tied to their electricity consumption.
  - Project-Specific Supply Options – generally customized products negotiated between the consumer and supplier which involves long-term commitments.
3. Certification Programs
  - Third-party certification and verification programs to avoid double counting or double claiming of EAC which is recommended for good industry practice.
4. Claims and Ownership
  - The owner of the EAC is the only one that can claim the environmental benefits of that EAC to avoid double counting.

This study also serves as an initial effort in considering the parallel implementation of the voluntary and compliance markets within the Philippine RE market program. Major considerations such as achieving RE compliance market maturity and ensuring sufficient supply of REC need to be settled first before implementing voluntary market in the Philippine REM. Hence, the following are recommended as future actions:

1. Conduct a full study to develop a voluntary REC market and ascertain the latter’s interaction with other registries.
2. Hold consultations among the policy makers (i.e., DOE and ERC), market participants, and other stakeholders to come up with a policy on the voluntary market that is suited to the Philippine context and harmonized it with the related RE programs.
3. Formulate a voluntary market implementation plan in line with relevant regulatory policies and direction with a major consideration on the parallel implementation of the compliance market.

## 1.0 PURPOSE OF THE DOCUMENT

This research study aims to:

1. Identify features of existing voluntary renewable energy (RE) market abroad.
2. Determine the feasibility of voluntary RE market implementation in the Philippines.

## 2.0 INTRODUCTION

It has been demonstrated that gearing towards utilization of renewable energy sources provides numerous significant benefits over conventional sources of energy. During the past few years, several renewable energy programs and initiatives worldwide are being developed and implemented to accelerate the transition to a cleaner and more sustainable energy future.

Perhaps one of the most popular drivers of renewable energy projects is the creation of a regulatory mandate called the Renewable Portfolio Standard (RPS) through the establishment of a Renewable Energy Market (REM). While the design and implementation of RPS program may vary on different regions, the general objective is to promote the use of RE sources by giving fiscal incentives and credits, among others, to RE project developers.

A common feature of RPS program includes issuance of Renewable Energy Certificate (REC) which is equivalent to an amount of power, typically 1 Megawatt hour (MWh), produced from RE sources and likewise corresponds to the environmental and other non-power attributes. In an electrical grid with a shared power generation mix, it would be virtually impossible to keep track and determine whether the energy produced comes from a renewable or a conventional source. Hence, the REC serves as an instrument to account for the electricity generated from a renewable energy resource. Depending on the applicable governing policies, these certificates may either be use in the compliance or voluntary RE market.

## 3.0 RENEWABLE ENERGY MARKET

The Renewable Energy Market is a venue for the trading of Renewable Energy Certificates and may be generally categorized into two:

### 3.1 Mandatory (Compliance) Market

Often driven by market-based policy, known as the Renewable Portfolio Standard or Renewable Electricity Standard, which is a regulatory mandate to increase production of energy from renewable sources. The generated REC in this market is used to demonstrate compliance with state RPS and must meet certain criteria laid out in the relevant RPS rules.

### 3.2 Voluntary Market

Mostly driven by environmentally conscious organizations or individuals interested in reducing their carbon footprint or greenhouse gas emissions. In this market, consumers and institutions purchase renewable energy to match their electricity needs on a voluntary basis.

## 4.0 MOTIVATION FOR VOLUNTARY RENEWABLE ENERGY MARKET

In support of the global efforts to fulfill international commitments and address environmental issues on climate change and greenhouse gas (GHG) emissions, corporate institutions and individuals are increasingly purchasing renewable energy. The potential scale of global corporate RE purchasing has been estimated to be nearly 100 GW and growing (Harrison 2020); however, many markets still lack supportive enabling environments for corporations to access RE through on-site project development or private sector transactions<sup>1</sup>.

Essentially, a voluntary RE market program enables wide range of industry players from large organizations to small-scale end-users or individuals to contribute and support the clean energy transition by purchasing RE through various available options. In the US alone, the voluntary green power market grew to 192 million megawatt-hours sold to 7.5 million customers in 2020 based on the report<sup>2</sup> by the National Renewable Energy Laboratory (NREL).

Provided below are some of the most common motivations for organizations and individuals to purchase RE, which encourages participation in a voluntary RE market program.

- **Reduce carbon footprint** – According to the International Energy Agency (IEA), the global energy-related carbon dioxide (CO<sub>2</sub>) emissions are estimated at 36.3 gigatonnes (Gt) for 2021 which sets the highest annual level record. With the joint effort among the industries coupled with various clean energy program initiatives and international commitments such as the Paris Agreement<sup>3</sup>, the idea of being carbon neutral in the future is a possibility.
- **Demonstrate environmental leadership** – The ability of an organization to make credible claims of using 100% RE could be a key strategy in maintaining or enhancing its corporate image.
- **Support renewable energy development** – Companies and individuals may contribute to accelerate the development of new or additional RE projects by creating a demand for tradable RE certificates on a voluntary basis, on top of an existing RPS mandate, as applicable.

There are many other benefits of purchasing RE in the voluntary market such as reducing exposure to fossil-fuel price volatility, creating positive relationships to stakeholders, and potential source of additional income, among others, that can be realized but will not be further detailed in this paper.

## 5.0 VOLUNTARY MARKET IN OTHER JURISDICTIONS

Based on record, the first retail REC product was sold by AllEnergy Marketing Company (Massachusetts) in May 1998<sup>4</sup>. This would eventually lead to the establishment of the voluntary RE market that is now being widely implemented particularly in the United States and Europe.

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<sup>1</sup> Hardison, Rob, Jenny Heeter, Sam Koebrich, and Bethany Speer. 2020. Voluntary Renewable Energy Procurement Programs in Regulated Utility Markets. Golden, CO: National Renewable Energy Laboratory. NREL/TP-6A20-76927. <https://www.nrel.gov/docs/fy21osti/76927.pdf>

<sup>2</sup> Status and Trends in the Voluntary Market (2020 data). <https://www.nrel.gov/docs/fy22osti/81141.pdf>

<sup>3</sup> The Paris Agreement is a legally binding international treaty on climate change that was adopted by about 196 Parties on 2015 which aims to limit global warming to well below 2°C above pre-industrial levels, and pursue efforts to limit the increase to 1.5°C. It further aims to strengthen countries' ability to deal with the impacts of climate change and support them in their efforts.

<sup>4</sup> <https://www.epa.gov/green-power-markets/history-voluntary-markets>

While the concepts and implementation of a voluntary RE market may vary per jurisdiction, this paper aims to provide a general outlook of the voluntary market in other jurisdictions by summarizing them into four main components – Energy Attribute Certificate, Renewable Electricity Purchasing Options, Certification Programs, and Claims and Ownership.

## 5.1 Energy Attribute Certificate

Energy Attribute Certificate (EAC) refers to a market-based instrument that represents 1 MWh of generated electricity from a renewable energy source. These digital certificates are typically created, transferred, and retired for several purposes. The three most common types of EAC being implemented globally are as follows:

**5.1.1 Guarantee of Origins (GO)** – the main electricity tracking instrument used by the European Union’s (EU) energy markets which provides transparency to customers about the proportion of electricity that suppliers source from renewable generation.

**5.1.2 Renewable Energy Certificate (REC)** – the main tool used for both compliance and voluntary markets in the United States and Canada.

**5.1.3 International REC Standard (I-REC)** – used in other parts of the world where green energy certification systems do not exist yet.

In addition to the abovementioned, a national or domestic certification of similar certificates are also being implemented to some countries where international standard certification is not yet in place such as Taiwan Renewable Energy Certificate (T-REC) in Taiwan and Large-scale Generation Certificate (LGC) in Australia.

It is important to highlight the role of EAC not only as a tracking and accounting instrument for generation and use of RE, but also as basis for claiming attributes, ownership credibility, and demonstrating retirement which are essential concepts within the context of voluntary market.

At their most basic level, these EAC may be similar in terms of having key information in the issued certificate (e.g., unique identifier, technology used, location, expiration date, etc.) and their characteristic to be “bundled” wherein it represents both the physical energy delivered and the environmental attributes, otherwise it is called “unbundled”.

The existence of these EAC enables corporations and individuals to contribute directly to the decarbonization of the electricity grid and reduce the environmental impact of their own operations. Furthermore, it allows the buying and selling of renewable energy across boundaries using tradable EAC wherever there is demand, on a voluntary basis.

## 5.2 Renewable Electricity Purchasing Options

The voluntary RE market primarily exists because of the increasing demand for tradable EAC from private organizations and individuals. A solid policy and regulatory framework for voluntary markets is critical for enabling a variety of procurement methods as well as ensuring that renewable energy retains all the attributes of interest to voluntary purchasers<sup>5</sup>. The diversity in supply options allows consumers to customize its RE procurement approach that best meet its financial, environmental, and operational objectives.

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<sup>5</sup> <https://www.raponline.org/blog/voluntary-renewable-energy-markets-in-china-key-conditions-for-unlocking-demand/>

This section provides a general outlook of the predominant existing RE purchasing and sourcing options available to end users in other jurisdictions, referencing to the well-known green power supply options in the US. For simplicity, these options are further classified into either retail or project-specific supply options.

### **5.2.1 Retail Supply Options**

These options are typically standardized products available to consumers from retail suppliers such as utilities, competitive electricity suppliers, and REC marketers. Retail supply options generally involve short-term commitments by the consumer to purchase a pre-determined volume or a volume tied to their electricity consumption. The renewable energy project(s) used to supply the product may be periodically changed by the supplier during the contract.

#### **5.2.1.1 Retail Renewable Energy Certificate (REC)**

While REC is being emphasized to be essential in all purchasing options, it is also offered as a stand-alone purchase option or product. The REC is called “unbundled” when it is sold, delivered, or purchased separately from its associated physical delivery of electricity. These unbundled REC offer purchasers the flexibility to purchase renewable energy in any quantity from any provider rather than being limited to a local electricity supplier, and often serve as an entry point for organizations entering the voluntary RE market. Customers may also purchase a combination of supply options that may include unbundled REC and any other supply options available.

In the US, about 221,000 customers procured about 86.4 million MWh of voluntary green power through unbundled REC in 2020.

In the EU markets, a similar procurement option is called “unbundled guarantee of origins” and can be either one-time purchase or supply contracts. Customers may opt to do a one-time purchase of GO with no preference made on location, technology, project, or timing. While a one-time purchase of unbundled GO is the simplest way for a customer to validate RE consumption, it is also the least impactful. Meanwhile in a supply contract, a corporate can have a greater impact with their unbundled GO purchase by entering a medium to long-term contract for the future supply of GO. By committing to a schedule of future purchases at a fixed price, the corporate can cover longer-term renewable energy claims, make a stronger financial commitment, and provide a stronger demand signal to the market.

#### **5.2.1.2 Competitive Green Power Products**

These optional product offerings allow customers in competitive retail electricity markets to procure bundled electricity and REC from a competitive electricity supplier that is not their default utility supplier. Participating customers usually pay a per-kilowatt-hour premium on their monthly electric bills for the renewable electricity. This option is generally purchased through short-term contracts of about 6 to 36 months long.

In the US, about 1.5 million customers procured about 21.6 million MWh of voluntary green power through competitive suppliers in 2020.

In the EU markets, a similar procurement option is called “green electricity supply” wherein customers have the option to enter into green electricity supply contracts with energy providers (i.e., utilities) for their GO purchase. These contracts, however, can take a broad range of forms from a short-term supply contract to a long-term fixed price bundled contract.

#### **5.2.1.3 Utility Green Power Products (Green Pricing)**

In the US, green power is defined as a subset of renewable electricity that represents those RE resources and technologies that provide the highest environmental benefit. This option allows customers to buy green power directly from their local electricity supplier which involves the sale of both the REC and electricity as a single commodity product within the same utility bill. Some utilities may buy unbundled REC and bundle them with their electricity service as green power.

About 1,085,000 customers procured about 11.6 million MWh of voluntary green power through utility green pricing programs in 2020.

#### **5.2.1.4 Community Choice Aggregation (CCA)**

This program is a result of a state policy which enables local governments to aggregate the electricity demand of its residential and non-residential customers within its jurisdiction and procure both electricity and REC on behalf of them from an alternative supplier that often has renewable energy product, while also maintaining the responsibility of the existing utility for the transmission and distribution services.

In most cases, all customers in the CCA community participate by default, oftentimes without them even knowing, but may also choose to opt out of the program. In the US, CCA are currently authorized in California, Illinois, Ohio, Massachusetts, New Jersey, New York, and Rhode Island.

About 4.7 million customers procured about 13 million MWh of voluntary green power through CCA in 2020.

### **5.2.2 Project-Specific Supply Options**

These options are generally customized products negotiated between the consumer and supplier. Project-specific supply options involve long-term commitments by consumers to purchase a volume tied to the output of a pre-determined generation capacity. The renewable energy project used to supply the product is constant throughout the term of the contract or commitment.

#### **5.2.2.1 Self-Supply**

Self-supply provides another option to obtain REC without purchasing, by owning and generating the renewable electricity for the consumer’s own consumption. Self-generation of RE can occur on-site or off-site but under both scenarios, the organization must retain ownership of the RECs to claim the use of renewable electricity.

### **5.2.2.2 Utility Green Tariffs**

A green tariff describes an arrangement by which regulators authorize a utility to negotiate a long-term contract for green power with an eligible individual, or sometimes multiple, large customers. The traditional green tariff form is sometimes called a “sleeve” because it is a contract within a contract: the utility enters a long-term contract with a third-party green power generator, and in turn contracts with the customer to purchase the REC and electricity through a special utility tariff rate or bilateral contract rate.

About 7.7 million MWh of renewable energy was procured through 42 utility renewable contracts through utility green pricing programs in 2020 in the US.

### **5.2.2.3 Physical Power Purchase Agreement (PPA)**

A physical PPA for renewable electricity is a contract for the purchase of power and associated RECs from a specific renewable energy generator (the seller) to a purchaser of renewable electricity (the buyer). Physical PPAs, which are usually 10 to 20 years agreement, define all the commercial terms for the sale of renewable electricity between the two parties including the electricity price, when the project will begin commercial operation, the schedule for the delivery of electricity, transfer of RECs from seller to buyer, penalties for under-delivery, payment terms, and termination. The renewable energy generator can be on-site or off-site, but the buyer must be located in the same power market to allow for physical delivery of electricity.

Physical PPAs by non-utility consumers are generally only allowed in competitive electricity markets and therefore purchasing organizations will need to determine from utility regulators the available options.

In the EU markets, similar concepts of physical PPA to those in the US are very common. A third-party intermediary will often be involved to deliver the generator’s energy, as well as any residual physical energy demand through a sleeving arrangement.

### **5.2.2.4 Financial Power Purchase Agreement (PPA)**

A financial PPA, also known as virtual PPA because the physical delivery of electricity to the buyer is not considered, is a financial arrangement between a renewable energy generator (the seller) and a consumer (the buyer) that is also usually a 10 to 20 years agreement.

In this option, the RE generator and purchaser agrees on a reference electricity settlement price or “strike price”. The electricity generated by the generator is sold into a wholesale electricity market and if the wholesale price is below the strike price, the buyer pays the renewable energy generator the difference. Conversely, if the wholesale price is above the strike price, the renewable energy generator pays the buyer the difference. The renewable energy certificates generated by the renewable energy generator are usually contractually conveyed to the buyer. In essence, a financial PPA is a hedge for both parties against rising electricity prices combined with an unbundled REC contract, where the cost of RECs varies depending on the difference between the wholesale market price and the agreed upon settlement price.

In the EU markets, similar concepts of virtual PPA to those in the US are also very common in which the price for the underlying electricity is settled through a Contract-for-Difference (CfD) structure. Virtual PPAs help to facilitate pan-European cross-border PPAs where the buyer and supplier are in different countries.

To put it simply, these RE purchasing options enable end-users or buyers to procure RE on a voluntary basis that may be customized to best meet their specific objective. It is critical that each of these options should involve the procurement of the associated Energy Attribute Certificate which will be the basis for the claim of using renewable electricity. A summary of the abovementioned RE purchasing options are presented in Table 1.

Table 1. Summary of RE Purchasing Options in Other Jurisdictions

No.	Green Power Supply Options (US)	Similar Procurement Options (EU)
<b>A. Retail Supply Options</b>		
1	Retail Renewable Energy Certificate (REC)	Unbundled GO: one-time purchase and supply contracts
2	Competitive Green Power Products	Green Electricity Supply
3	Utility Green Power Products (Green Pricing)	
4	Community Choice Aggregation (CCA)	N/A
<b>B. Project-Specific Supply Options</b>		
1	Self-Supply	Similar options available
2	Utility Green Tariffs	
3	Physical Power Purchase Agreement (PPA)	
4	Financial Power Purchase Agreement (PPA)	

According to a report<sup>6</sup> by the International Renewable Energy Agency (IRENA), corporate sourcing of renewable electricity is a growing global trend, already seen in more than 70 countries around the world. The majority of companies reporting active sourcing are head-quartered in Europe and North America, with emerging markets on the rise. Production for self-consumption is the most common sourcing model, followed by the purchase of unbundled EAC and PPA.

### 5.3 Certification Programs

To set a quality standard for the acquired EAC, whether self-generated or purchased, third-party certification and verification programs exist which provide added credibility to the product's attributes and value. Certification allows customers to confidently state that the purchased green power product has met the specific environmental and consumer protection standards adopted by the certifying organization, and in addition, verification helps ensure that there is a traceable pathway back to a known generator and that no other consumers can lay claim to the attributes from the same megawatt-hour of generation<sup>7</sup>.

Globally, there exist a variety of certification programs that operate in a similar fashion, although each with a slightly different scope and criteria. A list of known certification programs is provided in Table 2.

<sup>6</sup> IRENA (2018), Corporate Sourcing of Renewables: Market and Industry Trends – REmade Index 2018. International Renewable Energy Agency, Abu Dhabi

<sup>7</sup> <https://www.epa.gov/greenpower/guide-purchasing-green-power>

Table 2. List of Known Certification Programs for EAC<sup>8</sup>

Certification Name	Country	Website
Green-e	United States	<a href="http://www.green-e.org">http://www.green-e.org</a>
GreenPower	Australia	<a href="http://www.greenpower.gov.au/">http://www.greenpower.gov.au/</a>
OK Power	Germany	<a href="http://www.ok-power.de/home.html">http://www.ok-power.de/home.html</a>
Gruener Strom	Germany	<a href="http://www.gruenerstromlabel.de/english/">http://www.gruenerstromlabel.de/english/</a>
TÜV SÜD	Germany	<a href="http://www.tuv-sud.com">http://www.tuv-sud.com</a>
TÜV Nord	Germany	<a href="http://www.tuv-nord.com">http://www.tuv-nord.com</a>
Bra Mijoval	Sweden	<a href="http://www.naturskyddsforeningen.se/">http://www.naturskyddsforeningen.se/</a>
EKOenergy	Multiple	<a href="http://www.ekoenergy.org/">http://www.ekoenergy.org/</a>
Centoporcento Verde	Italy	<a href="http://www.centopercentoverde.org">http://www.centopercentoverde.org</a>
Naturmade	Switzerland	<a href="http://www.naturemade.ch">http://www.naturemade.ch</a>
Milieukeur Groene Elektricitei	Netherlands	<a href="http://www.smk.nl/19/home.html">http://www.smk.nl/19/home.html</a>
Green Power Certification System	Japan	<a href="http://eneken.ieej.or.jp/greenpower/eng/index.html">http://eneken.ieej.or.jp/greenpower/eng/index.html</a>

In the US, the primary certification program for green power products is the voluntary Green-e Energy program administered by Center for Resource Solutions. In the EU markets, the European Energy Certificate System (EECS) serves as a standard for European Guarantees of Origins. Nations that are members of the Association of Issuing Bodies (AIB)<sup>9</sup> and adhere to the EECS are easily able to trade GO cross-border with no risk of double counting, claiming, or attributing. When most stakeholders refer to the GO voluntary market, they are referring to the standardized EECS-GO market.

Outside Europe and North America, the International REC (I-REC) Standard serves as a globally recognized standard that ensures the highest quality systems and adherence to best practices designed to avoid double counting, double certificate issuance, and double attribute claims.

Absent a certification program, EAC claims by domestics and global companies corresponding to RE generation in the Philippines will cause greater risks of double counting, claiming, or attribution.

## 5.4 Claims and Ownership

The act of claiming the environmental attributes requires the retirement of the associated EAC, whether self-made or retired on behalf of whoever owns the EAC. It is important to highlight the ownership criteria wherein the owner of the EAC is the only one that can claim the environmental benefits of that EAC, and such claim can only be done once.

Presented in Table 3 are some of the most common practices for claiming the associated attributes of EAC referencing to the technical criteria set by the RE100 initiative<sup>10</sup>.

<sup>8</sup> <https://resource-solutions.org/wp-content/uploads/2015/07/Overview-of-International-Voluntary-Renewable-Electricity-Procurement-and-Public-Claims.pdf>

<sup>9</sup> At the end of 2021, AIB has 31 members from 27 European countries (EU, EEA, and Energy Community member states)

<sup>10</sup> RE100 is a global corporate leadership initiative bringing together influential businesses committed to 100% renewable electricity

Table 3. Technical Criteria for RE Claims

No.	RE Purchasing Options	Claims
<b>A. Retail Supply Options</b>		
1	Retail Renewable Energy Certificate (REC)	The reporting company shall retire the certificates it purchases, or the certificates shall be retired on behalf of the company. Retail products shall be certified, or sales shall otherwise be verified by a third party to ensure the accurate and exclusive delivery of certificates as well as an exclusive claim on the attributes (e.g., the Green-e Energy certification program for REC products in the U.S. and Canada). Where certificates are purchased directly, and certification programs are not used, or available, exclusive claims must otherwise be verified.
2	Competitive Green Power Products	The supplier shall purchase and retire or retain certificates on behalf of the reporting company making the claims. In countries where no tracking systems are available, transfer of attributes shall be specified in a contract or via an alternative system that ensures claims are unique and there is no double counting of attributes. Retail programs or products shall be certified, or sales shall otherwise be verified by a third party to ensure the exclusive ownership and accurate delivery of attributes.
3	Utility Green Power Products (Green Pricing)	
4	Community Choice Aggregation (CCA)	RE100 members can claim renewable electricity usage from the default-delivered/standard product offering by an energy supplier when, and only when, the utility/supplier is retiring Energy Attribute Certificates on behalf of those customers that meet the Energy Sources and Technologies and Credible Claims criteria in Sections 3 and 4 of the Technical Criteria <sup>11</sup> .
<b>B. Project-Specific Supply Options</b>		
1	Self-Supply	If the on-site facility is grid-connected, certificates shall be produced and retained or retired by or for the company. In markets without certificates, the company shall retain the attributes of generation and no other entity may claim use or delivery of renewable electricity from the on-site facility. If off-grid and only connected by a direct line to consumer, meter readings shall constitute sufficient proof of consumption. Any certificates produced in the latter case shall be also retained or retire.
2	Utility Green Tariffs	Similar to A.2 and A.3
3	Physical Power Purchase Agreement (PPA)	Certificates issued by the specific project shall be transferred to and retired by the reporting company or

<sup>11</sup> [https://www.there100.org/sites/re100/files/2021-03/RE100%20Technical%20criteria%20\\_for%20website\\_final.pdf](https://www.there100.org/sites/re100/files/2021-03/RE100%20Technical%20criteria%20_for%20website_final.pdf)

No.	RE Purchasing Options	Claims
4	Financial Power Purchase Agreement (PPA)	retired on the company's behalf. In other cases, certificates may be traded (stripped) and an equivalent purchase of certificates from another project shall be transferred to and retired by the company or retired on the company's behalf. In countries where tracking systems do not exist, transfer of attributes shall be specified in a contract or via an alternative system that ensures claims are unique and there is no double counting of attributes.

The actual benefits of using RE can only be realized by demonstrating the retirement or cancellation of a credible and verified EAC, whereas incorrect claims of using RE and its associated attributes could result in legal and financial risks as well as damage to corporate image and reputation.

#### *Double Counting*

The concept of double counting (aka double claiming) of EAC is one of the most common topics of concern in the context of voluntary market. Double counting and/or claiming of EAC occurs when the associated attributes of a single EAC is claimed by two (or more) different parties regardless of whether in the compliance or voluntary market, or in both.

It is therefore important that the information on ownership is clearly stated in the EAC. While transfer of ownership is possible through buying or selling of EAC or as indicated in the sales contract, claiming of environmental benefits for a single EAC can only be done once by whoever is the owner or on behalf of the owner. Once an EAC is claimed, it is considered as "retired" and therefore cannot be claimed again by another party.

As explained in Section 5.3 of this report, it is recommended that EAC are certified or verified by independent and credible certification programs to avoid double counting and for good industry practice.

## **6.0 VOLUNTARY MARKET IMPLEMENTATION IN THE PHILIPPINES**

In April 2021, the Philippines submitted its nationally determined contribution (NDC)<sup>12</sup> under the Paris Agreement wherein the country commits for a 75% reduction in greenhouse gas (GHG) emission from a 2020 baseline by 2030. In addition, the Philippines is also targeting to achieve 35% renewable energy in the nation's energy mix by 2030 and 50% by 2040. To realize such ambitious targets, the country continues to reshape its energy industry towards clean energy through numerous renewable energy programs and initiatives.

The announcement of moratorium<sup>13</sup> on new coal-fired power plants in October 2020 is one way to facilitate the clean energy transition. In addition, the enactment of Republic Act No. 9513<sup>14</sup> or the "Renewable Energy Act of 2008" promotes the development and implementation of various programs such as the Green Energy Option Program (GEOP) and Renewable Energy Market (REM) that seek to accelerate the development of the country's RE resources.

<sup>12</sup> <https://unfccc.int/sites/default/files/NDC/2022-06/Philippines%20-%20NDC.pdf>

<sup>13</sup> <https://cleanenergynews.ihsmarkit.com/research-analysis/philippines-announces-moratorium-on-new-coalfired-power.html>

<sup>14</sup> <https://www.officialgazette.gov.ph/2008/12/16/republic-act-no-9513/>

While the current focus of the REM implementation is on the establishment of a Renewable Portfolio Standards which acts as a compliance market, the study on voluntary market implementation is also being explored as part of market development undertaking and consistent with the National Renewable Energy Program<sup>15</sup> created by the Department of Energy (DOE).

### 6.1 Parallel Implementation of Compliance and Voluntary Market

While both compliance and voluntary market help drive the development of RE projects, the question of whether to implement either one ahead of the other or to implement both in parallel varies across different jurisdictions. Since a regulatory policy is already in place for the establishment of a compliance market in the Philippines, one of the major considerations for now is to focus on achieving RE compliance market maturity in terms of market participant familiarity and implementation in general, prior to the parallel implementation of a voluntary RE market.

Another major consideration is the evaluation of the available supply and demand of REC in terms of complying first with the RPS requirement and then eventually the buying and selling of REC on a voluntary basis. A simulation study was conducted by the DOE and the result suggests that there will be enough REC for RPS compliance until year (2023). An excess number of generated REC above the RPS compliance level could be an indicator to usher in the voluntary RE market.

In terms of local demand for voluntary market, the RE Registrar is already receiving numerous inquiries related to voluntary market implementation which are mostly from multinational companies that are based in the Philippines wanting to meet corporate RE goals. While this is a good indicator that there is already a potential market, the necessary preparations for market readiness still needs to be carefully assessed to accommodate such potential.

### 6.2 Initial Concepts and Design Issues

This study identified several market designs issues and initial concerns for considerations, prior to implementing a voluntary market in the Philippine REM. This is further detailed in Table 4.

Table 4. Initial Market Design Issues and Concerns

No.	Philippine RE Compliance Market (current design)	Philippine RE Voluntary Market (proposed design)	Remarks
1	REC issuance is backdated to 26 December 2017	Consider checking prior issuances of similar certificates (i.e., I-REC) to affected mandated participants for the given period	Ensure that the REC to be issued are original and unique to avoid double counting
2	RPS Eligible facilities (came into commercial operation from 2009 onwards)	Consider the registration of non-RPS eligible facilities (before 2009) within Philippine REM, but for voluntary market purposes only	To provide additional source of REC for voluntary market purposes, with proper distinction from the RPS-eligible REC

<sup>15</sup> [https://www.doe.gov.ph/sites/default/files/pdf/announcements/nrep-2020-2040\\_0.pdf?withshield=1](https://www.doe.gov.ph/sites/default/files/pdf/announcements/nrep-2020-2040_0.pdf?withshield=1)

No.	Philippine RE Compliance Market (current design)	Philippine RE Voluntary Market (proposed design)	Remarks
3	REC trading via PREMS for compliance market	Possible mechanism for buying and selling of REC within PREMS on a voluntary basis, on top of the RPS requirement	Ensure sufficient REC for RPS compliance before implementing voluntary market
4	REC Registry (PREMS)	Recommend using the same REC Registry	Possible international recognition for PREMS as a credible voluntary market procurement tool
5	RE Certificate	Preference on “bundled” REC	Concept of bundled and unbundled REC
6	REC surplus for RPS compliance (until 2023)	Consider the effect of increasing demand for REC with the voluntary participation vis-à-vis the supply levels of REC and RPS rules	High demand for REC will result to an increase in the cost of REC, which may result to an increased risk of non-compliance for mandated participants
7	Cost of operating the REM	Look at how the cost of operating the REM can be well distributed with the accommodation of voluntary participants	To avoid a situation where voluntary participation is effectively subsidized by the mandated participants whereas it should be the other way around since the REM transaction cost was initially borne by mandated participants
8	REM interim commercial operations (ICOP) by August 2022	The timing of implementing the voluntary market should be carefully studied	Wait until the RE market for mandated participants stabilizes, and areas for improvement that were immediately identified are addressed first prior to implementing the voluntary RE market

### 6.3 Expanding the RE Market Roles

Once the RE compliance market is already established in the Philippine WESM and reached a certain level of maturity, changes in terms of RE market roles are necessary to accommodate the voluntary market implementation. Some of the initial proposed expansion of RE market roles are provided in Table 5.

Table 5. Proposed Expansion of RE Market Roles

Entity	Philippine RE Compliance Market (current role)	Philippine RE Voluntary Market (proposed)	Remarks
PEMC	RE Registrar	Local/domestic issuer for I-REC (optional)	Possible coordination with international organizations (i.e., I-REC)
Distribution Utilities	Mandated Participant  Registers voluntary facilities of end users within franchise area.	DU may surrender the REC in favor of their captive customers who are registered in the voluntary market (i.e., beyond their DU's RPS level)	Allow direct registration of End-User (Captive, CC, DCC, and GEOP End-User) in the voluntary market.  PREMS functionality enhancement: provide options when surrendering REC either for RPS or for voluntary market.
Retail Electricity Suppliers	Mandated Participant	RES may surrender the REC in favor of their CCs and beyond their RPS level	
Generators Serving DCCs	Mandated Participant	Generators may surrender the REC in favor of their end-users and beyond their RPS level	
End-users (Captive, CC, DCC, and GEOP End-User)	N/A	May register in the REM as voluntary participants but RECs will be automatically retired upon purchase.  For their self-generation, the only action they can do is to retire the REC.	

## 7.0 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This study serves as an initial effort in exploring the general features of existing voluntary RE market abroad and the consideration for the parallel implementation of the voluntary and compliance markets within the Philippine RE market program.

The potential for the voluntary RE market is already promising as seen in the global trends, and emerging markets such as the Philippine REM will continue to rise. This is primarily driven by the continuous increase in the demand for tradable and voluntary REC and the desire to contribute to the clean energy transition. However, major considerations such as achieving RE compliance market maturity and ensuring sufficient supply of REC need to be settled first before implementing voluntary market in the Philippine REM.

Hence, the following are recommended as future actions:

1. Conduct a full study to develop a voluntary REC market and ascertain the latter's interaction with other registries.

2. Hold consultations among the policy makers (i.e., DOE and ERC), market participants, and other stakeholders to come up with a policy on the voluntary market that is suited to the Philippine context and harmonized with the related RE programs.
3. Formulate a voluntary market implementation plan in line with relevant regulatory policies and direction with a major consideration on the parallel implementation of the compliance market.

Aside from what was covered in this study, there are still many other important concepts within the context of voluntary market that needs further research and consideration that can be covered in the full study including but not limited to the following:

1. EAC pricing scheme
2. Impacts of RE purchasing options and its associated EAC
3. Tracking systems and EAC registries
4. Interaction with compliance market
5. Carbon credit or offset

In addition, a more detailed assessment of the existing features of voluntary market abroad vis-à-vis the Philippine REM implementation is necessary to identify what could be adopted or modified for future consideration and implementation, subject to the direction of the regulatory policies in place.

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