

Environmental Certificates 101: What Are Environmental Certificates and How Do Their Markets Operate?

Canonical:

<https://northmoregordon.com/articles/what-are-environmental-certificates-how-do-their-markets-operate/>

Details:

Home > Articles > Environmental Certificates 101: What Are Environmental Certificates and How Do Their Markets Operate?

Environmental Certificates 101: What Are Environmental Certificates and How Do Their Markets Operate?

Published: June 14, 2022.

Environmental certificates are tradable instruments representing environmental benefits such as emissions reductions or renewable energy generation. They serve as an accounting layer that assigns environmental attributes to a commodity or activity, enabling those benefits to be separated from physical products and traded independently. In energy markets, certificates record characteristics like renewable electricity generation (RECs), energy savings (white certificates), or carbon reductions (carbon offsets). Each certificate type operates within its own regulatory scheme with specific eligibility, creation, and retirement rules. We help clients understand which certificate instrument matches their activity, jurisdiction, and intended environmental claim.

Publication context: This article reflects its publication date. Market prices, program rules, reporting duties and deadlines may have changed. Confirm current official guidance before making a decision.

Whether it be recognising status or declaring ownership, certificates acknowledge value. For the broad class of products known as Environmentally Attributed Certificates, the value comes from ascribing some environmental benefit to a traded commodity.

Environmentally Attributed Certificates most commonly apply energy or carbon attributes to a generation or offsetting activity, yet they can be used to track any type of environmental value, such as distinguishing between different carbon intensities of hydrogen or managing nitrate concentration in water outflows. In essence, Environmentally Attributed Certificates serve as an accounting layer that sits atop a product or commodity to track its environmental credentials.

Certificates and their markets serve as valuable economic tools to incentivise businesses to embrace decarbonisation and environmental responsibility. Understanding how the Environmentally Attributed Certificate markets function and operate will help businesses design a procurement strategy that aligns with the national decarbonisation goals as well as their own corporate objectives.

What are the Different Energy Certificates?

In the energy space, there is a spectrum of certificates to distinguish between various decarbonisation efforts and activities:

Green Certificates (Energy Attributed Certificates)

White Certificates

Carbon Offsets or Carbon Credits

Green Certificate

A Green Certificate, also known as a Renewable Energy Certificate (REC), represents 1MWh of renewable energy generation. Popular energy sources for these certificates include PV solar, wind, hydro, geothermal, and biofuels. Nuclear is not typically credited because uranium is not a renewable fuel, despite having zero carbon intensity.

To take things a step further, there are Time-based Energy Attributed Certificates being trialled that match the renewable energy generation with the electricity demand on an hourly basis throughout the day.

White Certificate

White Certificates are used to track reductions in energy use and are measured in either MWhs of energy saved or in Tonnes of CO₂-e abated. Certified activities are typically those that improve energy efficiency, such as replacing traditional lighting with LEDs, installing more energy-efficient equipment, or adjusting business practises to increase energy productivity. There is an emerging market for demand response certificates that aim to drive reductions in peak energy use times at the height of summer.

Carbon Offsets (or Carbon Credits)

Carbon Offsets represent a reduction of one metric tonne of CO₂-e from either removal or avoidance activities. Emissions removal involves activities that will extract carbon from the atmosphere. This includes planting new forests, making certain changes to agricultural practices, or implementing direct air capture and sequestration technologies. On the other hand, emissions avoidance activities stop emissions that would have otherwise occurred. Energy efficiency measures, fuel switches to low-carbon sources, and forest conservation practices are examples of emissions avoidance activities.

What are the Principles of an Environmental Certificate Program?

Certificates must pass through a regulatory framework to become approved and registered for trading. This involves registering a project, monitoring the activity or performance of the project, collecting data and evidence to support the environmental claims, undergoing external verification, and being accepted by the program regulator.

Once projects and their associated certificates are approved, the certificate programs have underlying principles that promote the existence and maintenance of certificate markets. These fundamental principles include additionality, persistence, and traceability.

Additionality asserts that having an existing certificate market promotes the development of activities that would otherwise not have developed under business-as-usual scenarios. For instance, without the existence of REC markets, there would not be an economic incentive for developers to build renewable energy plants. Therefore, the certificates stimulate additional activity to drive climate, energy, and other environmental improvements. As such, owners of environmental certificates can take ownership of driving this progress.

Persistence refers to the certified activity having a lasting impact. In some situations, this persistence may mark that savings are intact for an allotted period of time. For other certificate activities, it assures permanence, where the carbon offset or sequestration activity represents emissions reductions that are permanently maintained and not re-released into the atmosphere.

Traceability enables certificates to be traced back to their source and for them to be tracked in a registry. This promotes transparency of activity and also inhibits certificates from being used by multiple parties.

These programs can be administered by government regulators or by third-party administrators. Certificate programs give shape to market-based funding programs, voluntary markets, and direct obligation schemes.

What are the Types of Certificate Markets?

There are two types of markets for certificates: compliance and voluntary. While demand is generated differently between these distinct market types, they both share the same underlying objective of accelerating environmental goals through an additional source of funding. This funding makes it feasible to develop renewable energy plants, implement energy savings strategies, and build carbon-reduction projects.

In regulatory compliance markets, there is an obligation on liable entities to surrender a certain number of certificates each year. Government bodies are the typical regulator for this market type, placing requirements on certain entities - such as electricity providers or large energy users - to surrender back to the government a certain number of certificates each year. Often there is a penalty price in compliance markets if an obligated entity fails to surrender the required number of certificates. Regulatory markets are the primary market for most certificates, yet there are certificates that are gaining popularity within voluntary markets.

In contrast to the compliance market, voluntary markets generate demand through businesses and consumers who want to buy certificates for their environmental credentials. These credentials bring businesses closer to achieving goals focused on net-zero pathways, decarbonisation, resource conservation, community development, and environmental stewardship. Although participation in voluntary markets is optional, third-party recognition can stimulate demand for specific certificates within the market. For example, Climate Active, the Australian government's carbon-neutral standard, only recognises certain certification types as eligible carbon offsets, which makes them more coveted than other certificates in the market.

There is a greater diversity of certificates within voluntary markets than in compliance markets. This causes voluntary markets to exhibit certificate price differential that is unseen in compliance markets where all certificates are treated as equal. Price disparity can be caused by the type of certificate, such as whether it represents carbon avoidance or carbon removal. In addition, some certificates in the voluntary market may cost a premium due to their associated co-benefits that align with the United Nations Sustainable Development Goals.

Not all certificate types have both compliance and voluntary markets - some certificate products are entirely voluntary, and some certificates with a compliance market have no voluntary demand from buyers. Where both a compliance market and a voluntary market exist for the same certificate, the prices are linked as demand in the voluntary market reduces the supply for the compliance market and vice versa.

How Does an Environmental Certificate Provide Value?

Holding an environmental certificate enables the owner to take claim to the environmental benefit it offers. For instance, when clean electricity from a PV solar farm enters the grid, it becomes indistinguishable from the rest of the grid electricity that is generated from other power sources. This makes it difficult to determine who the end-user of that clean electricity is. Therefore, a facility must purchase a REC to make the claim that they are indeed using the clean electricity generated from that solar farm. Without the certificate, the facility is unable to make the claim and is therefore unable to take advantage of the other significant business benefits that stem from transitioning to a clean energy profile.

Making the clean energy transition is becoming increasingly important, as people, governments, corporations, and investors want stability now and security for the future. Climate change is no longer an abstract scientific conversation. It is wrapped into all pressing matters of the day, from fuel price

hikes and supply chain bottlenecks to rising concerns around sweeping fires, intense storms, and dying coral reefs. Our climate and environment must be prioritised, and businesses that adapt to and embrace a nature-positive model are positioning themselves for long-term success.

Although there are immeasurable societal and environmental benefits in transitioning away from fossil fuels and protecting the environment, there also must be sound economic motives to really incentivise businesses to embrace decarbonisation. This is where certificate markets, and Northmore Gordon, come into play.

Northmore Gordon specializes in the nuances, policies, and procedures of the energy certificate marketplace. We help businesses find and source energy solutions that promote the well-being of their own business as well as that of the community and environment. To incorporate a more nature-positive strategy and stay ahead of the changing energy landscape, reach out to us and see just how empowering our partnership can be.

Reporting and compliance context

Confirm the reporting entity and period, current thresholds, regulator guidance, evidence boundary and assurance obligations before applying the dated discussion to a live report.

Related guidance

Carbon advisory

Scope 1, 2 and 3 emissions

Contact us

Read the original article for the source publication and its full context.

What are environmental certificates and how do they function in energy and carbon markets?

Environmental certificates are tradable instruments representing environmental benefits such as emissions reductions or renewable energy generation. They serve as an accounting layer that assigns environmental attributes to a commodity or activity, enabling those benefits to be separated from physical products and traded independently. In energy markets, certificates record characteristics like renewable electricity generation (RECs), energy savings (white certificates), or carbon reductions (carbon offsets). Each certificate type operates within its own regulatory scheme with specific eligibility, creation, and retirement rules. We help clients understand which certificate instrument matches their activity, jurisdiction, and intended environmental claim.

How do compliance and voluntary certificate markets differ, and what drives their prices?

Compliance markets require liable entities such as electricity providers or large energy users to surrender a specified number of certificates annually to government regulators, often with penalty prices for non-compliance. Voluntary markets operate through businesses and consumers choosing to purchase certificates to support net-zero pathways and environmental goals. Voluntary markets show greater price variation than compliance markets because they encompass diverse certificate types—such as carbon avoidance versus removal—with different co-benefits and perceived value. Where both markets exist for the same certificate type, prices are linked because supply and demand in one market affects availability in the other. This pricing complexity requires careful commercial assessment when selecting instruments.

What are the three fundamental principles that underpin environmental certificate programs?

Additionality, persistence, and traceability form the foundation of credible certificate programs. Additionality asserts that certificate markets promote activities that would not occur under business-as-usual scenarios, ensuring genuine environmental benefit. Persistence refers to the lasting

impact of certified activities—energy savings remain intact for defined periods, or emissions reductions are permanent. Traceability enables certificates to be tracked from source through registry systems, preventing double-counting and allowing verification that each certificate supports only one party's environmental claim. Understanding these principles helps organisations distinguish genuine environmental benefits from unverified claims and informs procurement decisions.

What is the difference between Renewable Energy Certificates (RECs) and White Certificates?

Renewable Energy Certificates represent 1 MWh of renewable electricity generation from sources such as solar PV, wind, hydro, or biofuels. They allow purchasers to claim use of clean electricity even when that electricity is indistinguishable in the grid from conventionally generated power. White Certificates track energy efficiency improvements and savings measured in either MWh of energy reduced or tonnes of CO₂-e abated. White Certificates reward operational changes—such as LED retrofits or equipment upgrades—rather than generation. RECs support renewable-electricity claims under market-based Scope 2 accounting, while white certificates address energy reductions. Certificate type selection depends on the activity, jurisdiction, and intended environmental boundary.

How do carbon offsets differ from renewable energy certificates in terms of what they represent?

Carbon offsets represent a reduction of one metric tonne of CO₂-e through either removal or avoidance activities. Removal activities extract carbon from the atmosphere—such as forest planting or direct air capture—while avoidance activities prevent emissions that would otherwise occur, including energy efficiency, fuel switching, or forest conservation. Renewable energy certificates represent renewable generation or energy savings and support electricity-focused accounting. Carbon offsets serve different accounting purposes and should not be conflated with renewable-electricity attributes. GHG Protocol's Scope 2 Guidance distinguishes renewable-energy attributes from carbon credits; they have different eligibility criteria and claims implications. We advise on appropriate instrument selection based on organisational boundaries and reporting framework.

What regulatory pathway must a project follow to create tradable environmental certificates?

Projects must pass through a regulatory framework comprising project registration, activity monitoring, data collection with supporting evidence, external verification, and acceptance by the program regulator before certificates can be issued and traded. Each scheme—whether NSW Energy Savings Scheme, Victorian Energy Upgrades, Renewable Energy Target, or ACCU Scheme—specifies its own registration requirements, evidence standards, measurement methodologies, and verification procedures. Certificate quantity, eligibility, and commercial value depend entirely on meeting these scheme-specific conditions. Early assessment of timing, ownership arrangements, and measurement requirements is critical because retrospective eligibility often cannot be recovered. We provide project registration, certificate creation and trading support, alongside engineering and commercial assessment to ensure activities meet applicable scheme requirements.

Why is it important to keep renewable electricity claims separate from carbon offsets in organisational reporting?

Renewable electricity certificates, carbon offsets, and physical energy reductions serve different accounting purposes and reporting objectives. Purchasing a renewable-electricity attribute does not eliminate Scope 1 or Scope 3 emissions—it only supports a specific claim about purchased electricity under applicable accounting frameworks. Carbon offsets represent emissions reductions outside an organisation's operational boundary. Combining these instruments without clear accounting separation leads to unsupported claims and reporting errors. GHG Protocol provides distinct standards for corporate inventories, Scope 2 accounting, and project-level claims. Organisations must establish their inventory boundary, proposed public claim, and applicable reporting framework before selecting instruments. We assist with boundary definition, claim file maintenance, and environmental-attribute due diligence to ensure integrity of environmental statements.

What is Climate Active and how does it determine which offsets are acceptable for carbon-neutral certification?

Climate Active is an Australian government-backed accreditation program that certifies organisations, products, services, and buildings as carbon neutral. Participating entities must measure Scope 1, 2, and material Scope 3 emissions, reduce where feasible, and offset the remainder through purchased and retired offsets. Accepted offsets include Large-scale Generation Certificates (LGCs) for Scope 2 emissions and Australian Carbon Credit Units (ACCUs), Certified Emission Reductions (CERs), Removal Units (RMUs), Verified Carbon Units (VCUs), or Verified Emission Reductions (VERs) for Scope 1 or Scope 3 emissions. Climate Active requires annual reporting and publication on its registry. Understanding these offset eligibility criteria is essential for organisations seeking carbon-neutral certification or managing environmental claims aligned with third-party standards.

How should organisations assess certificate eligibility and commercial viability before including them in an investment case?

Certificate eligibility and commercial viability depend on separate factors that should be modelled independently. Activity eligibility requires confirmation that the proposed project meets the particular scheme and method requirements—technology type and capacity alone do not establish eligibility. Certificate quantity depends on verified evidence, measurement methodology, and scheme-specific calculation rules. Commercial value depends on certificate price, sale timing, and applicable commercial terms. An investment case should separate base-case economics (without unconfirmed proceeds) from incentive scenarios showing certificate assumptions explicitly. Do not rely on historical case values or assume a certificate price based on past projects. We assess activity eligibility, evidence requirements, calculation basis, and commercial treatment separately, helping organisations distinguish genuine funding opportunities from unsupported promises.