



**Certified Energy**

New Zealand Energy Certificate System



thinkstep  
anz



# Energy Certificates and Reporting

A Guide

Commissioned by NZECS

**Client:** New Zealand Energy Certificate System (NZECS)  
**Title:** Energy Certificates and Reporting  
**Report version:** V1.0  
**Report date:** 21 April 2021  
© thinkstep Ltd  
**Cover photo:** Andrew Cooper CC BY 3.0

**Document prepared by:**

Emily Townsend Technical Director Carbon

**Quality assurance by:**

Barbara Nebel CEO

**thinkstep Ltd**

11 Rawhiti Road  
Pukerua Bay  
Wellington 5026  
New Zealand



[www.thinkstep-anz.com](http://www.thinkstep-anz.com)

[anz@thinkstep-anz.com](mailto:anz@thinkstep-anz.com)

+64 4 889 2520

This report has been prepared by thinkstep-anz with all reasonable skill and diligence within the agreed scope, time and budget available for the work. thinkstep-anz does not accept responsibility of any kind to any third parties who make use of its contents. Any such party relies on the report at its own risk. Interpretations, analyses, or statements of any kind made by a third party and based on this report are beyond thinkstep-anz's responsibility.

If you have any suggestions, complaints, or any other feedback, please contact us at:  
[anz@thinkstep-anz.com](mailto:anz@thinkstep-anz.com).

# Executive Summary

Public reporting of greenhouse gas (GHG) emissions and other material environmental, social, and governance (ESG) topics is becoming increasingly common as companies seek to provide transparency on their operations and impacts. Many companies also wish to demonstrate their approach to reducing GHG emissions and reliance on fossil fuels.

Robust corporate GHG inventories are based on the international GHG standards, which recognise renewable and low carbon energy use through the market-based reporting method. This enables the use of specific emission factors that reflect the organisation's electricity procurement choices. The emission factors are informed by contractual instruments, such as Energy Attribute Certificates (EACs).

Organisations can use EACs to demonstrate the procurement of renewable lower-carbon energy to support emission reduction plans and targets, reduce the offsets required for carbon neutral certification, and reduce their exposure to climate-related risks. In addition to the direct benefits to the organisation, procurement of renewable energy provides a clear signal to generators and regulators of market demand for renewable electricity, helping to shift the system towards a more renewable generation mix.

In September 2020, the New Zealand Government announced plans to make climate-related financial disclosures mandatory for some organisations. This would require reporting on the financial risks and opportunities that climate change could create for an organisation, including financial impacts arising from transition to a lower carbon economy, such as through carbon pricing. EACs help organisations to secure low carbon electricity supply, reducing uncertainties in future costs and increasing resilience in the supply chain.

New Zealand's Climate Leaders Coalition (CLC) promotes business leadership and collective action on climate change, with signatories required to publicly report their emissions and set reduction targets aligned with science. As with the international Science Based Targets initiative, CLC recognises the use of EACs to reduce scope 2 emissions.

Carbon neutral certification is becoming increasingly common for both organisations and products, and typically requires the measurement and reduction of emissions as well as mitigation of the remaining emissions through the purchase of carbon credits. EACs can be a cost-effective way to reduce gross emissions and liabilities and are recognised by certifying entities.

At their simplest, EACs demonstrate commitment to renewable energy and reduced reliance on fossil fuels, providing useful messaging for public communications. This also forms the basis for the RE100 initiative commitment to sourcing 100% renewable electricity, and is recognised in certifications such as BCorp.

# Energy Certificates and Reporting

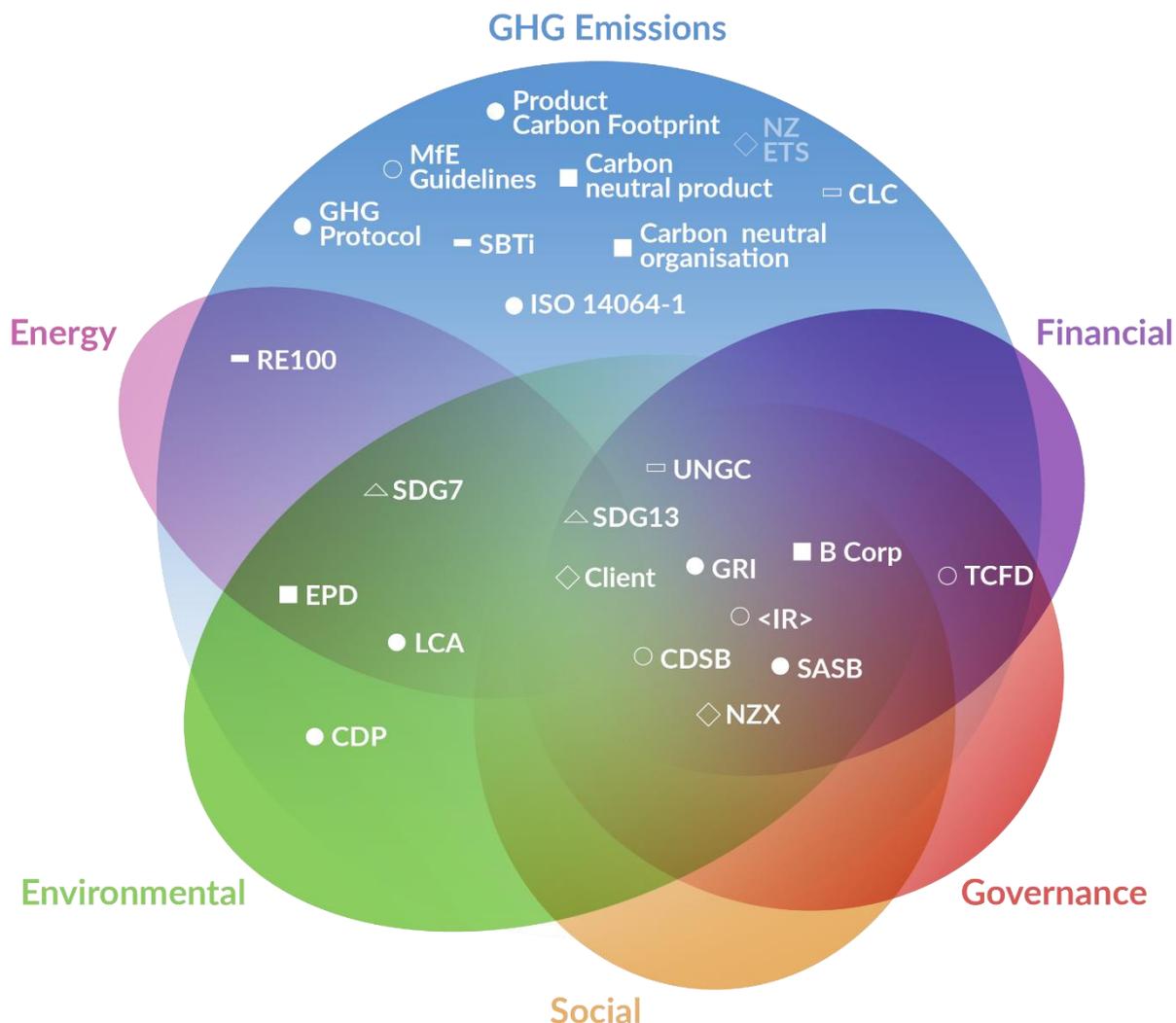
## Reporting Landscape

---

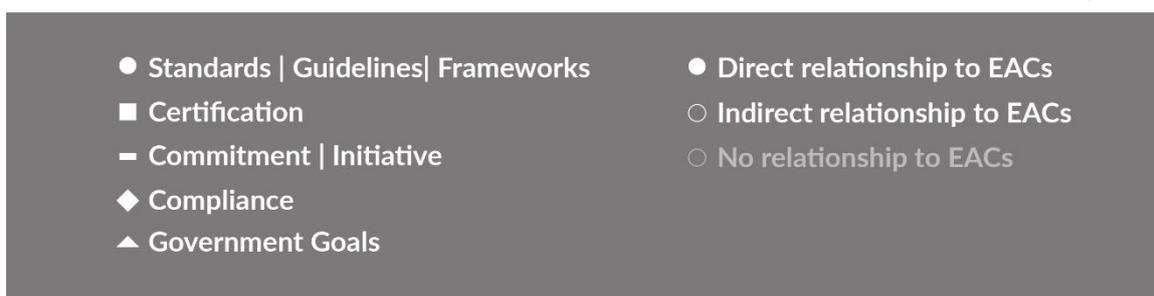
Public reporting is becoming increasingly common as companies seek to provide transparency on their operations and impacts. The specific topics included in a report depends on the reporting drivers and the material (important) aspects; some reports focus exclusively on greenhouse gas (GHG) emissions, while others cover a full range of environmental, social, and governance (ESG) topics.

With increasing concern around climate change, most companies assess this as material to their business and GHG reporting is almost ubiquitous. Many companies also wish to demonstrate their approach to reducing GHG emissions and reliance on fossil fuels. A common method of reducing scope 2 (electricity) GHG emissions is the purchase of certified renewable energy through a contractual instrument such as an Energy Attribute Certificate (EAC).

A number of reporting standards and frameworks have been developed to support the different needs of companies, including reporting required as part of a sustainability commitment or certification and for compliance purposes. A common theme of reporting frameworks is to identify the material issues, quantify the impacts, and explain the approach to managing those impacts. The most common reporting frameworks in New Zealand, their scope, and their relationship to EACs, are shown in Figure 1. Notably, the New Zealand Emissions Trading Scheme (NZ ETS) has no relevance to EACs.



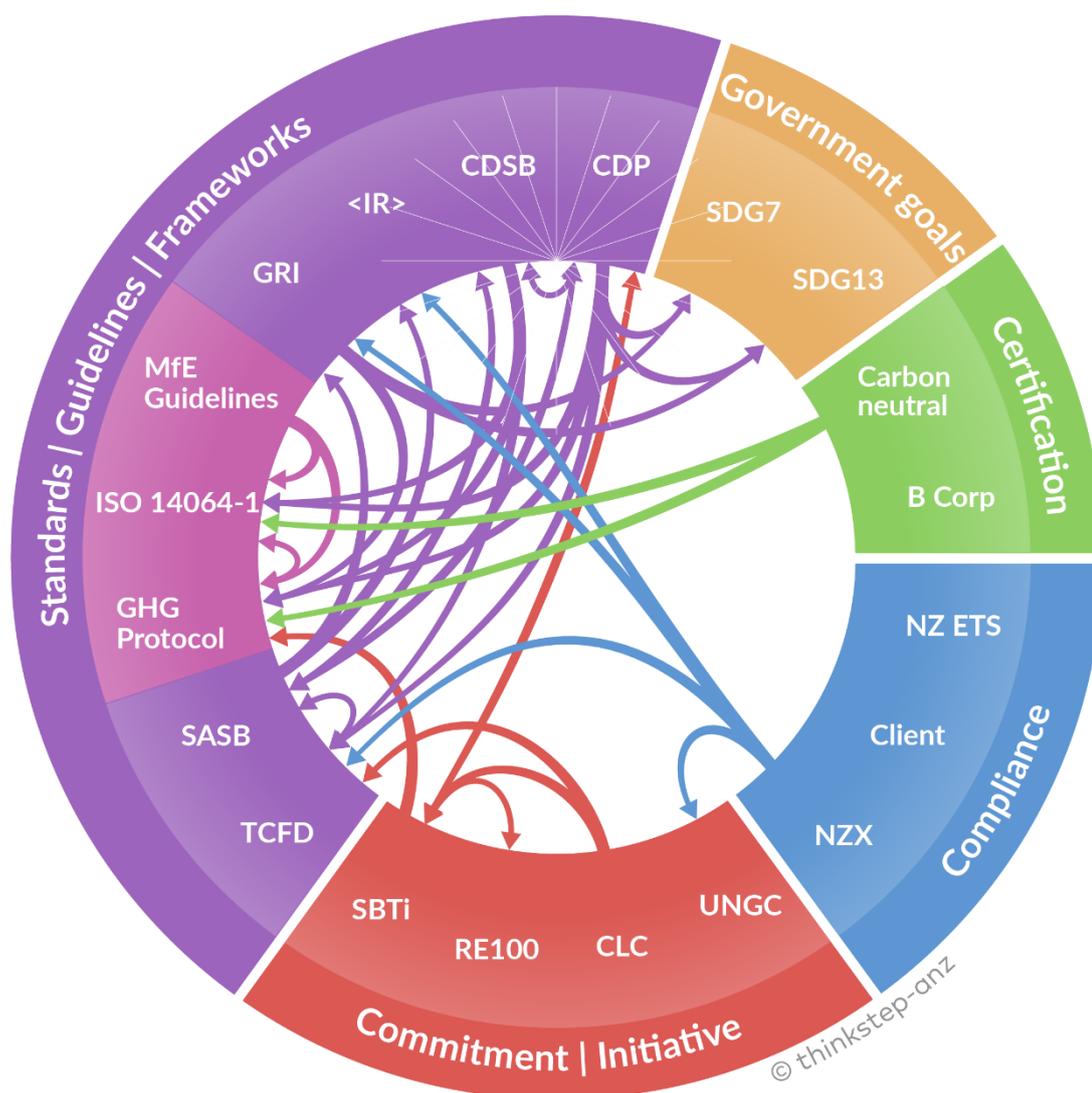
© thinkstep-anz



**Figure 1: Reporting frameworks common in New Zealand**

Many of the frameworks are related, also creating indirect relevance to EACs. These linkages are explored in Figure 2, where the arrow head indicates the referenced framework.

In some cases, the linkage is twice-removed, for example the NZX ESG Guidance (NZX, 2019) for listed companies recommends using a global reporting framework such as the Global Reporting Initiative (GRI), Integrated Reporting (<IR>), or the UN Global Compact (UNGC). The GRI Standard for Emissions, GRI 305 (GSSB, 2016a), recommends reporting GHG emissions in line with the GHG Protocol, which introduces the concepts of contractual instruments and market-based reporting, so indirectly linking EACs to NZX reporting.



**Figure 2: Linkages between corporate reporting frameworks**

Indirect relevance to EACs can also occur where a framework does not specify the mechanism by which GHG emissions are reported. For example, The International <IR> Framework (IIRC, 2013) promotes the explanation of how an organisation interacts with its external environment across six 'capitals' to create value over time. The capitals are stocks of value that are increased, decreased, or transformed by an organisation's activities. The 'natural capital' includes all renewable and non-renewable environmental resources that support an organisation. <IR> also requires the reporting of risks, opportunities and outcomes that have an effect on the ability of the organisation to create value. Reporting entities may therefore use EACs to demonstrate their reliance on renewable resources rather than fossil energy, avoiding the destruction of non-renewable natural capital and reducing their emissions and contribution to climate change risks.

## GHG Standards and Energy Certificates

### GHG Protocol and ISO 14064-1

The most important globally recognised standards governing the reporting of organisations' greenhouse gas emissions are the GHG Protocol (GHG Protocol Team, 2004) and ISO 14064-1:2018 (ISO, 2018). The two standards are closely aligned and are intended to result in inventories that are not materially different. The GHG Protocol includes a suite of standards and guidance documents providing detailed description on the production of a GHG inventory. The Scope 2 Guidance (GHG Protocol Team, 2015) covers reporting of electricity emissions.

Traditionally, electricity emissions (scope 2) are calculated using a 'location-based' emission factor, that accounts for the emissions from all generators connected to the grid the electricity is being purchased from. As interest in renewable energy has increased, contractual instruments have developed to enable consumers to purchase their electricity from a specific source. The introduction of 'market-based' reporting reflects the choices made by consumers, enabling the use of specific emission factors. The key differences between the location-based and market-based methods are shown in Figure 3.

Location-Based Method	Market-Based Method
<p>Quantifies scope 2 GHG emissions based on average emission factors representing all energy generation within a defined geographic area and defined time period</p>	<p>Quantifies scope 2 GHG emissions based on specific emission factors representing energy generation from which permissible contractual instruments are purchased</p>
<p>Reflects electricity GHG intensity and highlights potential resource issues in location of operation</p>	<p>Demonstrates individual procurement choices and provides opportunity to influence suppliers</p>
<p>Applies to all electricity grids</p>	<p>Applies to any operations in markets offering differentiated electricity products in the form of contractual instruments</p> <p>© thinkstep-anz</p>

**Figure 3: Comparing location-based and market-based methods**

The two standards differ slightly in requirements for market-based scope 2 reporting. Both mandate location-based reporting as a minimum, so that organisations using market-based reporting must prepare two scope 2 inventories. ISO 14064-1 *permits* market-based reporting, whereas the GHG Protocol *mandates* its use in all situations where appropriate contractual instruments exist. One of the requirements for appropriate market-based reporting is that a 'residual grid mix' emission factor is published, reflecting the average emissions of the grid after removal of purchased contractual instruments. Emissions for electricity not covered by contractual instruments must be calculated using the residual grid mix emission factor, ensuring that all emissions are accounted for.

## **New Zealand MfE Voluntary Reporting Guidance**

The NZ Government publication 'Measuring Emissions: A Guide for Organisations' (Ministry for the Environment, 2020) is designed to support voluntary reporting of organisations' greenhouse gas emissions. The guide aligns with and endorses the use of the GHG Protocol and ISO 14064-1:2018.

The 2020 Guidance includes location-based electricity emission factors for New Zealand and does not include a residual mix to enable market-based reporting. While the Voluntary Reporting Guidance does not specifically address the use of market-based reporting, this would be indirectly applicable through alignment with GHG Protocol and ISO 14064-1.

## **New Zealand Emissions Trading System**

The NZ ETS is a 'cap and trade' scheme where the quantity of New Zealand Units (NZUs), representing a metric tonne of carbon dioxide equivalent, is restricted by a cap to create a financial incentive to reduce emissions. Only specific activities leading to direct emissions of greenhouse gases are required to report to NZ ETS and to surrender the equivalent amount of NZUs.

The NZ ETS relates to the direct emissions from generation of electricity. It is important to note that the surrender of NZUs does not mean that the emissions are 'offset', and consumers of the electricity still need to calculate their location-based emissions using the grid average emission factor.

Since scope 2 emissions are not included, the NZ ETS has no relevance to the New Zealand-based EAC system – the New Zealand Energy Certificate System (NZECS). The ETS obligation is applied at the point of emission and is passed through the market only as an operational cost, so is an unavoidable cost borne by all users of grid electricity.

## **Purpose and mechanism of Energy Certificates**

---

Purchasing renewable energy enables organisations to support electricity generation methods that match their values and to contribute towards a sustainable and low-carbon energy system by increasing demand for renewable energy.

However, most electricity is purchased through a grid, carrying a mix of all electricity generation, including both fossil and non-fossil sources. This means even a consumer purchasing electricity from a retailer that generates only renewable electricity will receive a mix, based on the generation mix for the grid. So, how can organisations claim the use of renewable or zero carbon energy, and avoid greenwashing?

The international standards provide strict requirements for market-based reporting to ensure that emissions are properly accounted for. The 'Scope 2 Quality Criteria' specified by the GHG Protocol Scope 2 Guidance are the most comprehensive, and criteria published by other guidance align with these.

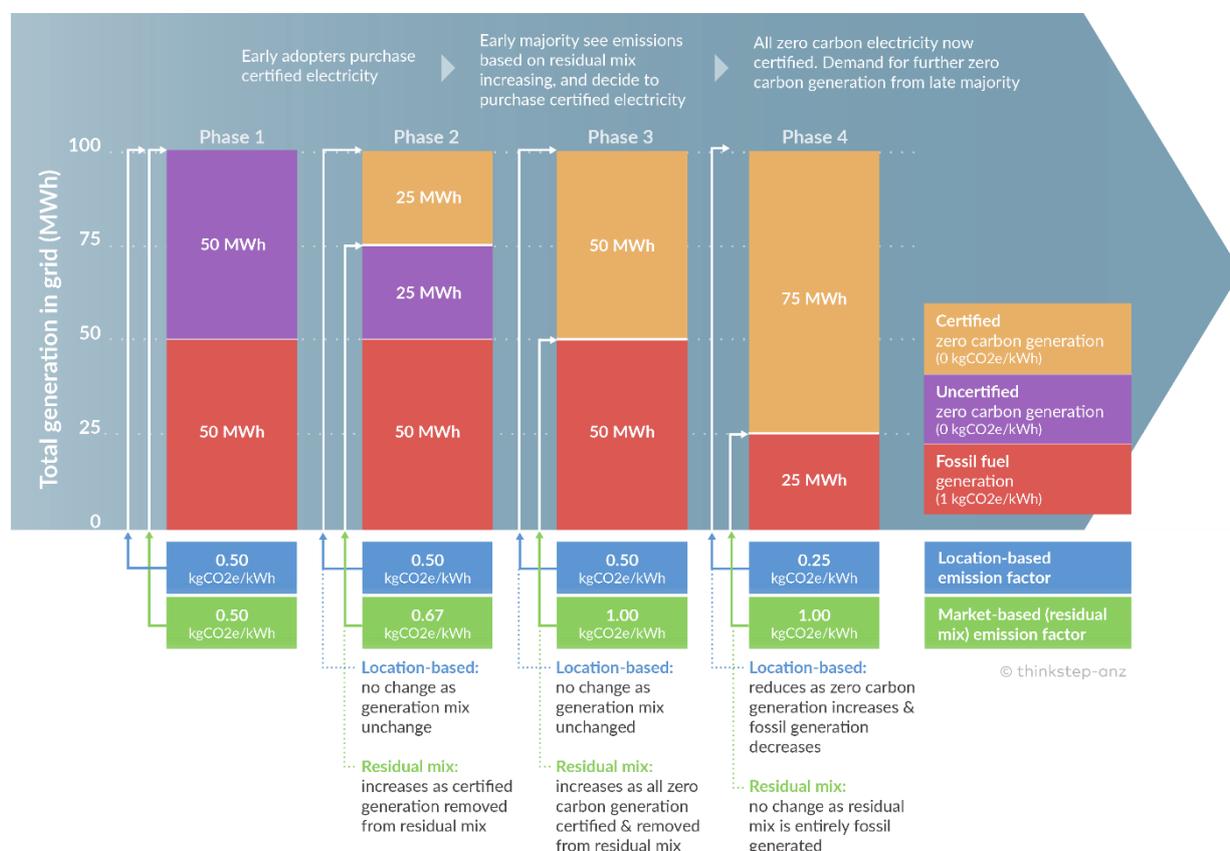
EACs comply with these requirements and enable the transfer of renewable energy production 'attributes' from generators to consumers. The attributes of electricity generation include the energy source used to generate the electricity, the amount of greenhouse gas emitted during generation, and the identity of the generating plant.

Emissions attributes for renewable energy vary depending on the energy source, with wind, solar and hydro generation having zero production emissions while geothermal and biomass generation have some emissions associated. As with location-based emission factors, the certificates only address the direct production emissions, from the actual generation process, and do not cover the life-cycle emissions of building and maintaining the generation facility.

Certification prevents double counting of attributes, so that each unit of generation can only be claimed once and is then retired, removing it from circulation and from the residual mix. Certificates need to be sourced from the same market and time period (typically the same year) in which the electricity is consumed, and can cover the total amount or a portion of the electricity consumed.

By purchasing EACs compliant with the Scope 2 Quality Criteria, consumers not only claim the use of 100% renewable electricity, but also drive up the emission factor of the residual grid mix. As the residual grid mix emission factor increases, it promotes other consumers to purchase EACs to reduce their own emissions and provides a clear signal to generators and regulators of market demand for renewable energy.

Figure 4 shows a simplification of the market-based reporting mechanism for a hypothetical electricity grid over time, where use of certification affects the residual grid mix, driving further certification and increased demand for zero carbon electricity, resulting in additional renewable generation and retirement of fossil fuelled generation. A larger version of Figure 4 is available in the appendix.

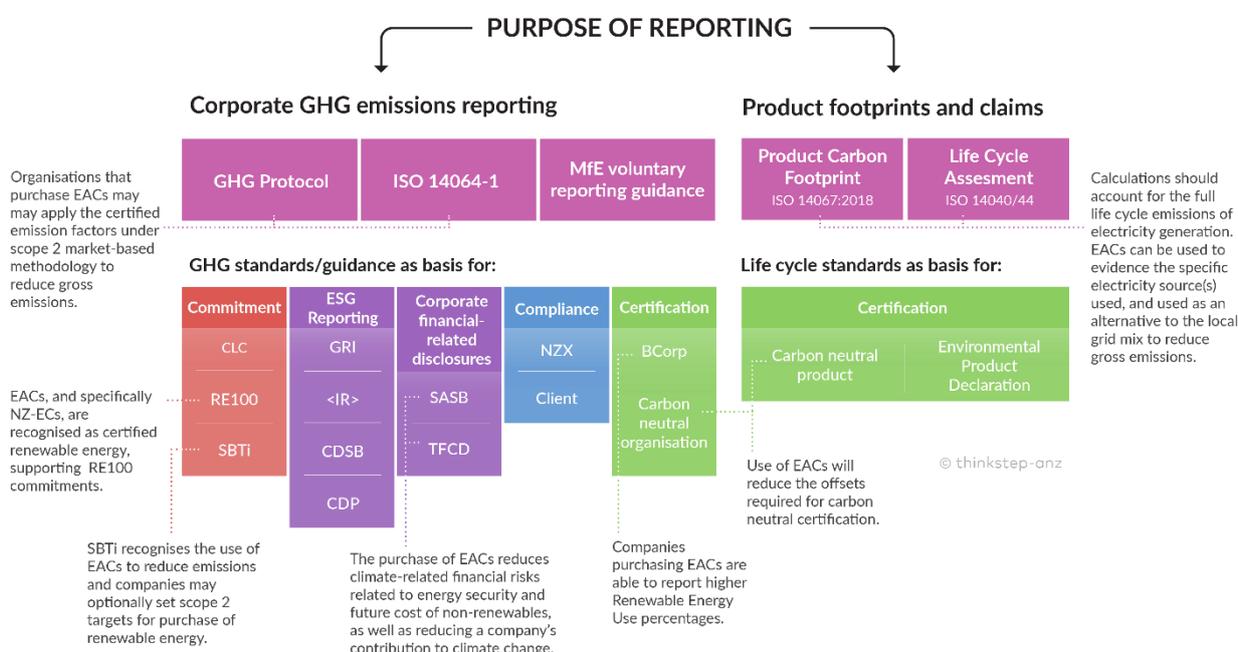


**Figure 4: Effect of Energy Certification over time**

The New Zealand electricity grid is already largely renewable, meaning that the national electricity emission factor used for location-based reporting is already low. This also means that a significant proportion of electricity will need to be certified in order to shift the residual grid mix. However, this does not detract from the purpose, and each certificate sold contributes toward the eventual system shift.

## How can my organisation use Energy Certificates?

Organisations can use EACs to demonstrate the procurement of renewable energy, support emission reduction plans and targets, reduce the offsets required for carbon neutral certification, and reduce their exposure to climate-related risks. The exact use of EACs depends on the organisation's reporting drivers and choice of framework, and consideration of the purpose of reporting can help identify the best framework, as shown in Figure 5, a larger version of which can be found in the appendix.



**Figure 5: Purpose of Reporting and use of EACs**

### Corporate reporting

A corporate GHG inventory can be used to inform wider ESG reporting, or as the basis for a commitment or certification. Companies in New Zealand reporting in line with the corporate GHG emissions reporting standards and guidance should use both location-based and market-based methodology. The emissions for any electricity covered by EACs should be calculated using the certified emission factors, thus resulting in lower gross emissions, while all other electricity purchases should use the higher residual mix emission factor. Companies may also choose to report on their overall energy consumption and sources, where EACs demonstrate commitment to renewable energy and reduced reliance on fossil fuels. These simple measures can be particularly impactful when communicating to the general public.

ESG reports may be aligned to one or more of the ESG frameworks and may also incorporate the financial impacts of ESG performance. In September 2020, the New Zealand Government announced plans to make climate-related financial disclosures mandatory for some organisations, in line with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD, 2017). TCFD reporting covers the financial risks and opportunities that climate change could create for an organisation. This includes the financial impacts arising from transition to a lower carbon economy, such as through carbon pricing. EACs help organisations to secure low carbon electricity supply, reducing uncertainties in future costs and increasing resilience in the supply chain.

Committing to an initiative enables organisations to demonstrate their action on key sustainability issues while using their collective voice to influence change. The global RE100 initiative enables businesses to commit to sourcing 100% renewable electricity, which can be demonstrated through EACs (RE100 Technical Advisory Group, 2016). Notably, RE100 recognises the NZECS, meaning that New Zealand businesses can purchase energy certificates to meet their RE100 commitment of sourcing 100% renewable electricity.

The Science Based Targets initiative (SBTi) promotes the adoption of GHG reduction targets in line with what the latest climate science says is necessary to limit global warming to well-below 2°C above pre-industrial levels (Science Based Targets initiative, 2019). Organisations may reduce their market-based scope 2 emissions using EACs or may optionally set targets for the procurement of renewable electricity.

New Zealand's Climate Leaders Coalition (CLC) promotes business leadership and collective action on climate change (Climate Leaders Coalition, 2018). Signatories must publicly report their emissions and set public reduction targets aligned with science. CLC does not specify methodology but aligns closely with the SBTi approach and therefore recognises the use of EACs and market-based reporting.

Companies may also wish to seek certification of their carbon or wider sustainability performance. Carbon neutral certifications typically require organisations to measure their emissions, manage them with reduction initiatives, and mitigate the remainder through the purchase of carbon credits. Carbon neutral certification schemes typically allow clients to choose whether to use location-based or market-based reporting to calculate their required offsets, where the underlying standards allow this. Companies choosing the market-based method can use EACs to reduce their gross emissions and liabilities.

BCorp certification recognises businesses that meet high levels of ESG performance while balancing profit and purpose (BCorp, 2020). The assessment covers both what companies do and how they do it and covers a wide range of topics including the use of renewable energy, which can be demonstrated through EACs.

## **Product reporting**

Analysis of the life cycle impacts of a product based on international standards can be used to inform environmental product declarations (EPDs) or a product carbon neutral certification. Companies purchasing EACs for the electricity used by their production or manufacturing operations can reduce the reported emissions intensity of their products and the offsets required for carbon neutral certification.

# References

BCorp, 2020. *B Impact Assessment*. [Online]

Available at: <https://bimpactassessment.net/>

[Accessed 01 10 2020].

CDP, 2020. *CDP Technical Note: Accounting of Scope 2 emissions*, s.l.: CDP.

Climate Disclosure Standards Board, 2019. *CDSB Framework for reporting environmental & climate change information*, s.l.: Climate Disclosure Standards Board.

Climate Leaders Coalition, 2018. *About*. [Online]

Available at: <https://www.climateleaderscoalition.org.nz/about>

[Accessed 01 10 2020].

GHG Protocol Team, 2004. *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard. Revised Edition*, s.l.: World Resources Institute and World Business Council for Sustainable Development.

GHG Protocol Team, 2015. *GHG Protocol Scope 2 Guidance: An amendment to the GHG Protocol Corporate Standard*, s.l.: World Resources Institute.

GSSB, 2016a. *GRI 305: Emissions*, s.l.: Global Sustainability Standards Board (GSSB).

IIRC, 2013. *The International <IR> Framework: Integrated Reporting*, s.l.: The International Integrated Reporting Council (IIRC).

ISO, 2006a. *ISO 14025: Environmental labels and declarations — Type III environmental declarations — Principles and procedures*. Geneva: International Organization for Standardization.

ISO, 2006b. *ISO 14040: Environmental management – Life cycle assessment – Principles and framework*. Geneva: International Organization for Standardization.

ISO, 2006c. *ISO 14044: Environmental management – Life cycle assessment – Requirements and guidelines*. Geneva: International Organization for Standardization.

ISO, 2018. *ISO 14064-1: Greenhouse gases - Part 1: Specification with guidance at the organisational level for quantification and reporting of greenhouse gas emissions and removals*, s.l.: International Standards Organisation.

ISO, 2018. *ISO 14067: Greenhouse gases - Carbon footprint of products - Requirements and guidelines for quantification*, s.l.: Geneva.

Ministry for the Environment, 2019. *About the New Zealand Emissions Trading Scheme*. [Online]

Available at: <https://www.mfe.govt.nz/climate-change/new-zealand-emissions-trading-scheme/about-nz-ets>

[Accessed 01 10 2020].

Ministry for the Environment, 2020. *Measuring Emissions: A Guide for Organisations - 2020 Detailed Guide*, s.l.: MfE.

NZX, 2019. *NZX ESG Guidance Note*, s.l.: NZX.

RE100 Technical Advisory Group, 2016. *Making credible renewable electricity usage claims*.  
s.l.:RE100.

Science Based Targets initiative, 2019. *Science-Based Target Setting Manual, version 4.0*,  
s.l.: SBTi.

Sustainability Accounting Standards Board, 2020. *SASB Implementation Worksheet*, s.l.:  
SASB.

TCFD, 2017. *Implementing the Recommendations of the Task Force on Climate-related  
Financial Disclosures*, s.l.: Task Force on Climate-Related Financial Disclosures.

# Appendix

Figures 4 and 5 are replicated in full size below.

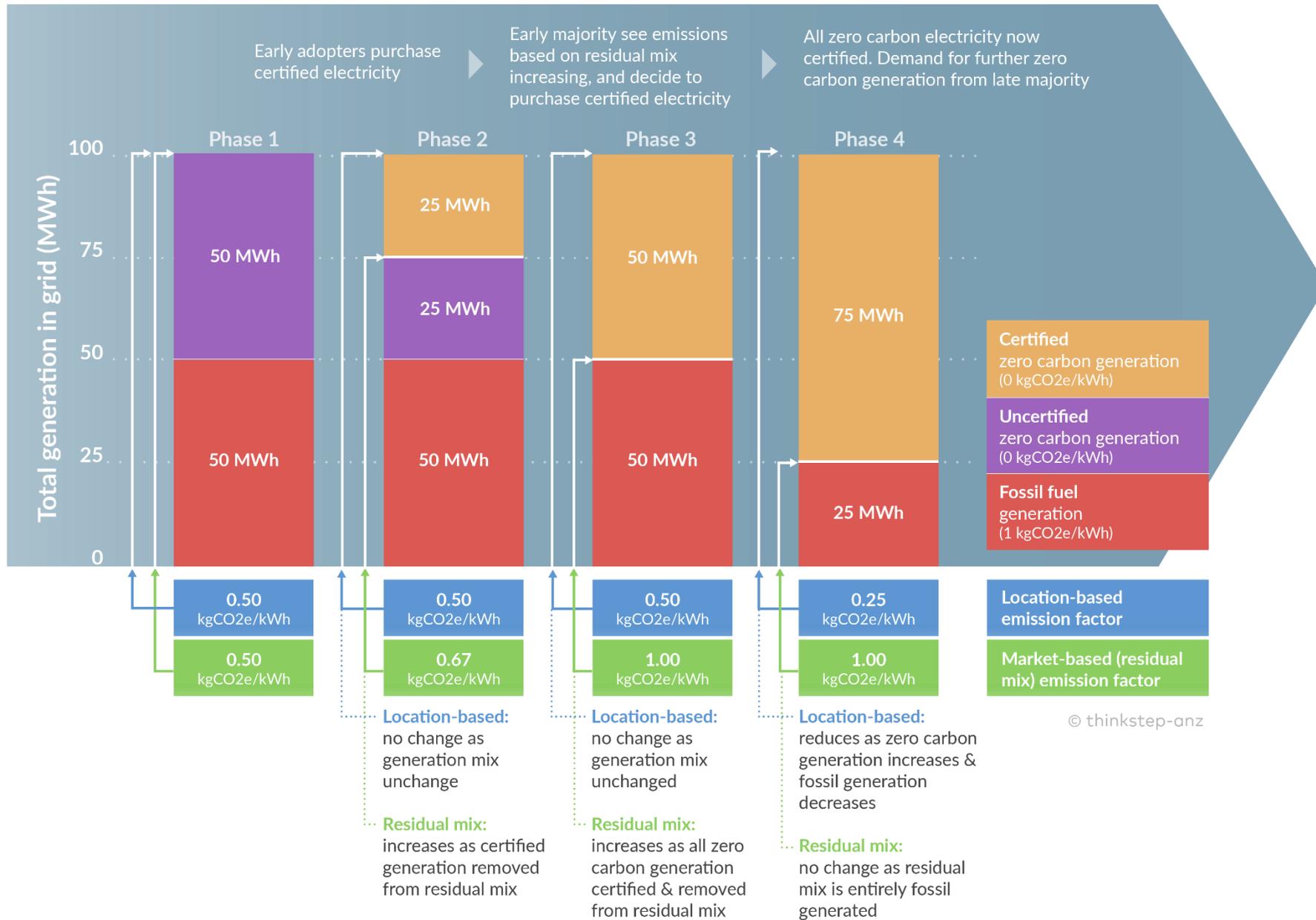


Figure 4: Effect of Energy Certification over time

# PURPOSE OF REPORTING

## Corporate GHG emissions reporting

## Product footprints and claims

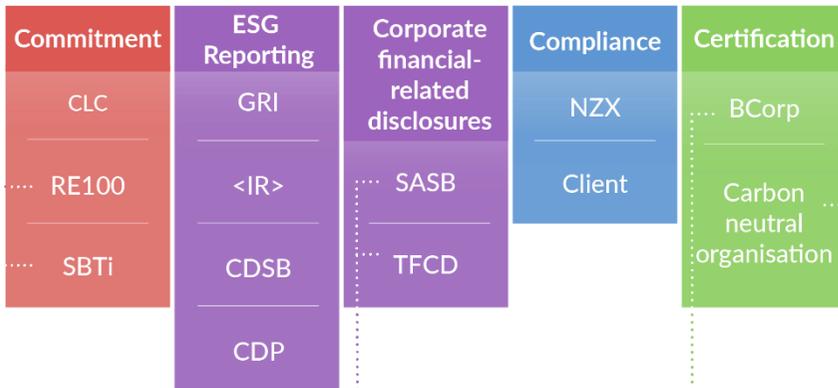
Organisations that purchase EACs may apply the certified emission factors under scope 2 market-based methodology to reduce gross emissions.



Calculations should account for the full life cycle emissions of electricity generation. EACs can be used to evidence the specific electricity source(s) used, and used as an alternative to the local grid mix to reduce gross emissions.

### GHG standards/guidance as basis for:

### Life cycle standards as basis for:



EACs, and specifically NZ-ECs, are recognised as certified renewable energy, supporting RE100 commitments.

SBTi recognises the use of EACs to reduce emissions and companies may optionally set scope 2 targets for purchase of renewable energy.

The purchase of EACs reduces climate-related financial risks related to energy security and future cost of non-renewables, as well as reducing a company's contribution to climate change.

Companies purchasing EACs are able to report higher Renewable Energy Use percentages.

Use of EACs will reduce the offsets required for carbon neutral certification.

© thinkstep-anz

Figure 5: Purpose of Reporting and use of EACs

# About thinkstep-anz



thinkstep  
anz

Our mission is to enable organisations to succeed sustainably. We develop strategies, deliver roadmaps, and implement leading software solutions. Whether you're starting out or want to advance your leadership position, we can help no matter your sector or size.

Why us? Because we are fluent in the languages of both sustainability and business. We are translators.

We've been building business value from sustainability for 15 years, for small and large businesses, privately-owned and listed companies, and for government agencies.

Our approach is science-based, pragmatic, and flexible.

Our work helps all industries in Australia and New Zealand, including manufacturing, building and construction, FMCG, packaging, energy, apparel, tourism, and agriculture.

Our services range from ready-to-go packages to solutions tailored to your needs.

As a certified B Corp with an approved science-based target, we make sure we walk the talk.

Our services cover:



## Product

- Life Cycle Assessment (LCA)
- Environmental Product Declarations (EPD)
- Carbon footprint
- Circular Economy (CE)
- Cradle to Cradle (C2C)
- Water footprint
- Packaging



## Carbon

- Carbon Footprint
- Scope 3 emissions
- Reduction strategies
- Carbon targets
- Science-based targets (SBT)
- Offsetting strategies



## Strategy

- Materiality assessment
- Green Star
- Sustainable Development Goals (SDGs)
- Foresighting & regenerative futures
- Roadmaps and action plans
- Responsible procurement & supply chain engagement



## Software & tools

- GaBi LCA software
- GaBi Envision
- Materiality Circularity Indicator (MCI)
- OpenLCA
- Etool
- Packaging calculator



## Reporting & disclosures

- Task Force on Climate-related Financial Disclosures (TCFD)
- Global Reporting Initiative (GRI) & Integrated Reporting (<IR>)
- B Corp
- Voluntary and compliance reporting
- CDP



## Communications

- Short form reports
- Case studies
- Infographics
- Workshops
- Storytelling
- Stakeholder engagement
- Sustainability reports



thinkstep  
anz



image by Ashish Ansurkar on Unsplash

# Succeed sustainably

**thinkstep ltd**  
11 Rawhiti Road  
Pukerua Bay 502  
New Zealand  
  
+64 4 889 2520

**thinkstep pty ltd**  
25 Jubilee Street  
South Perth WA 6151  
Australia  
  
+61 2 8007 3330

**meet@thinkstep-anz.com**  
**www.thinkstep-anz.com**  
  
@thinkstepANZ  
thinkstep-anz  
thinkstep-anz

Wellington | Auckland | Hamilton | Christchurch | Sydney | Perth | Canberra

Doing our part:

