

Maximising the reliability and impact of buying renewables: *guidance for market participants*



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Contents

1	Introduction	3
2	Executive summary	3
	2.1 Who this guidance is for	4
	2.2 Why this guidance is needed	4
	2.3 What this guidance covers	5
3	Assessing the impact of renewable energy purchasing	6
4	The concept of ‘additional impact’	7
5	Factors that affect the reliability and impact of a renewable energy purchase	8
	5.1 Geographic (market boundaries)	8
	5.2 Geographic (physical connections)	10
	5.3 Attribute Age (vintage)	10
	5.4 Market type (the role of regulatory surplus)	11
	5.5 Contractual forms (different ways of buying renewable electricity)	12
	5.6 Full-attribute ownership	13
	5.7 Quality criteria for tracking systems	14
	5.8 Third-party verification	15
6	Wrap-up	15

1 Introduction

This paper addresses key questions regarding the procurement of renewable energy. Its guidance should provide the market with clarity on how to maximise the reliability and impact of procuring renewables. It contains recommendations made by RECS International¹ that have been reviewed and endorsed by leading renewable energy market participants. The guidance builds on the basic laws and standards, set out by others², that should be followed to ensure that the essential elements of consumer claims about the use of renewable energy can be properly verified.

2 Executive summary

This guidance is for participants in renewable energy markets founded on energy attribute certificate (EAC) systems. It particularly supports consumers who want to maximise the impact of their procurement. Having described the book and claim system on which EAC systems are based, the paper assesses the environmental and socio-economic impact of procuring different types of renewable energy. It then provides guidance on how to maximise the impact and reliability of renewable energy markets in eight important areas.

1. **Geographic (market boundaries)**
Electricity users should purchase energy attribute certificates from generation sites located within the same legal/energy market jurisdiction.
2. **Geographic (physical connections)**
The lack of a physical connection should not prevent the purchasing of renewable energy certificates from within the same legal/energy market area.
3. **Attribute Age (vintage)**
End-users and market players should consume electricity as close to the time of consumption as possible.
4. **Market type (the role of regulatory surplus)**
Contributing to regulatory surplus in a compliance market will increase the impact of renewable electricity purchases. But regulatory surplus is not relevant in all systems
5. **Different means of buying renewable electricity**
All contracts for power and for attribute certificates rely on the same markets, rules and systems and, therefore, no contractual form is inherently more reliable than any other.

1. <https://www.recs.org/who-we-are>

2. Such as the European Union's Renewable Energy Directive 2018/2001 (Article 19), the CEN CENELEC Standard 16325 (undergoing revision in 2020), The European Energy Certificate System rules as maintained by the Association of Issuing Bodies, and the Greenhouse Gas Protocol Scope 2 Guidance from the World Resources Institute.

6. **Full Attribute ownership**
Any given EAC should contain all the social, environmental and energy attributes related to a specific unit of electricity production.
7. **Recognised attribute tracking systems**
Stakeholders should seek to use recognised standards for attribute tracking and support national authorities to develop robust local systems, which adhere to international standards, where they are not already in place.
8. **Third-party verification**
Third-party verification helps ensure that a system is being operated correctly and that consumer's claims about the power they are using are reliable.

2.1 Who this guidance is for

This guidance is for conscientious energy consumers, be they large corporates, small or medium enterprises, or households. In particular, it supports electricity end-users who want to maximise the impact of buying renewable electricity. The guidance also supports the reliability of renewables markets by establishing common ground on which to reliably certify the production, transfer, and consumption of electricity.

2.2 Why this guidance is needed

The reliable functioning of attribute tracking systems is crucial because electricity is not like other products - it cannot be produced, packaged, shipped and sold in easily identifiable physical units. Instead, the power grid is a charged system that must be kept in balance to avoid blackouts. Producers are paid to add an electrical charge to the grid, and consumers pay to take that charge off the grid. System operators and electricity markets function together to maintain a balanced charge on the grid. Without a physical product to be coded and scanned at different distribution and retail points, only a book and claim system can be used to reliably track the attributes³ of a given megawatt-hour of electrical charge from a producer to a consumer. In the renewable electricity book and claim system, generators receive certificates for the power they produce which is 'booked' in a central registry. Consumers, sometimes supported by intermediaries, then purchase these certificates and 'claim' the use of renewable energy by cancelling or redeeming the associated attributes. To ensure the reliability of these claims, the whole value chain should be transparent and open to verification by independent third parties.

3. The characteristics of the energy produced, including production technology (solar, wind, etc), energy carrier (electricity, gas, etc.), location of the production device, time and date of energy production, public support production device may have received, age of production device, unique certificate identification number.

2.3 What this guidance covers

These book and claim systems are based on standards that provide a recognised method for procuring renewable electricity. A leading example of such a standard is the Greenhouse Gas Protocol (GHGP) Scope 2 Guidance Document⁴. This document created a common understanding of energy attribute tracking that has supported the development of renewable energy markets around the world. The GHGP Scope 2 Guidance is supported by public reporting and disclosure frameworks, such as the Carbon Disclosure Project (CDP)⁵ which runs a global environmental disclosure system, RE100⁶ which holds its corporate members to account for their commitments to buy renewable energy, and the Science Based Targets initiative⁷ which supports companies to set greenhouse gas emission reduction targets in line with climate science.

Three well established international Energy Attribute Certificate (EAC) systems allow consumers to make robust claims about their use of renewable energy. Renewable Energy Certificates (RECS) are used in North America⁸. Guarantees of Origin (GOs/GoOs) are used in the European single market⁹. The International Renewable Energy Certificate (I-REC Standard) is used in over 30 countries across South America, Africa, the Middle East and Aisa¹⁰. Beyond these strong international systems, there are also several national schemes run by individual countries of varying quality. Not all national systems are sufficiently well established to support robust consumer claims¹¹.

This guidance is not in competition with the standards, disclosure and verification schemes, or EAC systems noted above. Instead, it seeks to clarify and add detail in specific areas and, through further information available from the authors, to provide up to date advice based on changes to EAC markets. This guidance, therefore, highlights eight important areas which are the subject of debates among market participants as for how to maximise the reliability and impact of purchasing renewable electricity:

1. **Geographic (market boundaries)**
2. **Geographic (physical connections)**
3. **Attribute Age (vintage)**
4. **Market type (the role of regulatory surplus)**
5. **Different means of buying renewable electricity**
6. **Full Attribute ownership**

4. https://ghgprotocol.org/scope_2_guidance

5. <https://www.cdp.net/en/info/about-us/what-we-do>

6. <http://there100.org/re100>

7. <https://sciencebasedtargets.org/>

8. <https://www.epa.gov/greenpower/renewable-energy-certificates-recs>

9. <https://www.aib-net.org/certification/certificates-supported/renewable-energy-guarantees-origin>

10. <https://www.irecstandard.org/how-the-i-rec-standard-works>

11. Contact RECS International (secretariat@recs.org) or the I-REC Standard (secretariat@irecstandard.org) for more information on the robustness of different national EAC schemes.

- 7. Recognised attribute tracking systems
- 8. Third-party verification

3 Assessing the impact of renewable energy purchasing

Before going into more detail on how to *maximise* the impact of renewable energy purchasing, this guidance paper will address the initial question of how to assess the impact of renewable electricity purchasing.

The impact of purchasing renewables is, for RECS International, based on two important aspects - one environmental and the other socio-economic:

1. The key environmental impact is the reduction in greenhouse gas emissions per megawatt-hour (MWh) of power generated and consumed
2. The key socio-economic impact is the contribution made to a transition towards 100% renewable energy systems

The generation of renewable electricity from wind, solar, hydro and geothermal has no emissions related to the production of each MWh of power - other than the relatively small volume of emissions linked to the construction and maintenance of the generating plant. Renewable electricity generated from burning biomass does create emissions, the level of which depends on the source of the fuels and how they are processed and used. In some instances, using biofuels to generate electricity could emit more greenhouse gases than using fossil fuels such as coal and gas. Emissions from hydropower are very project-specific and can vary widely depending on where and how the hydropower dam was built. However, the median emission intensity of hydropower is of a similar level to that of wind, solar, and geothermal power in all their forms. Therefore, for electricity consumers to maximise the environmental impact that buying renewable energy can have on cutting greenhouse gas emissions, they need to know that they are buying power from wind, solar, hydro (depending on the specific project) or geothermal sources¹².

When buying electricity from any renewable generation source a consumer is signalling the market to generate more renewable electricity. However, if consumers wish to maximise the socio-economic impact of their renewable electricity purchases by providing the strongest market signals for more new renewables then, again, they must be well informed. Buying electricity from a

¹². More detail on the comparative lifecycle greenhouse gas emissions from electricity supplied by commercially available technologies can be found in figures 7.6 and 7.7, with related text, in Chapter 7 of the 5th Assessment Report of the International Panel on Climate Change (https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_chapter7.pdf)

hydropower plant built 50 years ago will, for example, not send a very strong market signal of demand for the building of new renewable power capacity. This is particularly the case when compared to agreeing in advance to buy power from a new utility-scale solar PV installation that will be financed through funds secured by early sales contracts for the generated power and energy attribute certificates. Such bilateral agreements tend to be undertaken by large corporate power consumers.

At the household level, the difference between electricity generators and suppliers is important. Unlike many commercial consumers, households do not buy power from generators but instead use suppliers who buy from generators and sell to consumers. For many electricity suppliers, the power they sell comes from more than one form of generation, be it renewable, fossil, or nuclear. In such instances, consumers should be able to see and take note of where their supplier is sourcing power from and how such suppliers are managing their revenues from sales of renewable energy. On the one hand, a supplier may be sourcing power from all generation technologies including old fossil fuel power and buying certificates as needed to cover the volumes they sell through renewables-based tariffs. Generators may also be using the revenues from such a supplier to invest in all types of power generation, including but potentially not limited to renewables. On the other hand, a supplier may only be sourcing from renewable electricity producers operating newly built wind and solar farms. Such generators may also be investing the revenues from these suppliers in the development of more renewable energy.

The degree of environmental and/or socio-economic impact that a renewable energy buyer wishes to have is a personal or business decision (see below) that can be taken by a well-informed consumer. In each case, energy attribute certificates will provide such consumers with the proof of what they have bought, be it electricity generated by co-firing biomass with coal in a 50-year-old power station or power from a recently built onshore wind farm.

4 The concept of ‘additional impact’

As noted above, an electricity consumer may want to go above and beyond simply procurement or purchase of renewable electricity. Consumers may choose to procure renewable electricity from a specific country or electricity generated with a specific production technology. They may require that the electricity adheres to strict environmental standards held by environmental labels (such as EKOenergy, Naturemade, Green-e, etc.). They may have business procurement rules that mean they can only purchase renewables if the generation capacity is built specifically for them or if they are the only buyer. In all such cases, the consumer is demanding more than just renewable electricity; they are demanding renewable electricity that adheres to criteria they set themselves. These criteria reflect their view of what kind of purchase

has the most impact on the energy transition and/or, particularly in the case of companies, what kind of purchase has the most impact on their environmental and/or carbon targets, CSR responsibilities. For some stakeholders, only some types of renewable energy purchases are likely to result in additional renewable power generation being built.

The term ‘additional impact’ is used to encapsulate debates over the impact of different types of procurement practices. For example, consumers who purchase attribute tracking certificates in a market that is short may believe they have a bigger impact on pushing the whole market towards becoming renewable than consumers who build a wind turbine for their own use and consumption. In other markets, however, consumers may consider it better to work with environmental labels or purchase criteria to maximise the additional impact of their purchases. In yet other situations, it may be most additional to have a long-term purchase agreement with a new or existing renewable device because such agreements can take projects from concept to reality.

This guidance, therefore, encourages renewable electricity consumers to develop their own definition of how to meet and go beyond minimum market standards through the adoption of best-practice renewable electricity procurement rules. Diversity in renewable electricity procurement strategies is, ultimately, expected to lead to a diversity in renewable electricity development and production that will support the overall energy transition. Therefore, rather than supporting a single definition of ‘additional impact’, this guidance seeks to identify areas that consumers should consider when evaluating the impact and reliability of their renewable electricity purchases.

5 Factors that affect the reliability and impact of a renewable energy purchase

5.1 Geographic (market boundaries)

Background

Renewable energy purchases where the consumption of a MWh happens within the same market as it was produced are considered to be more reliable because they take place within a single system, thereby minimising the risk of a loss of information and transparency when a certificate moves between systems. Furthermore, procurement from a market outside the one where the electricity is used can indirectly deny local electricity producers the financing and market opportunities that may have been provided if consumers placed more value on securing renewable energy from within the same market as their consumption. This should be avoided.

The GHGP Scope 2 Guidance Document has clear regulations when it comes to market boundaries: “All contractual instruments used in the market-based method for Scope 2 accounting shall (...) be sourced from the same market in which the reporting entity’s electricity consuming operations are located and to which the instrument is applied.” This statement, however, leaves some ambiguity about the definition of the boundaries of a given market.

Guidance

Electricity users should purchase energy attribute certificates from generation sites located within the same legal/energy market jurisdiction. This can be defined as consuming attributes from production devices that are within a single legal area where the disclosure of electricity purchases or sales adhere to the same rules and instruments. This would apply to markets such as those in the European Single Market or the United States and parts of Canada, which are considered to be single-market regions.

Problems arise when procurement is not possible in a specific country or region due to a lack of renewable energy generation and/or a reliable tracking instrument for renewable power that is being generated. In this case, buyers should procure attributes from the nearest reliable tracking system, preferably one with a physical power connection to the market where the power is to be consumed. An example would be the origination of attributes from Finland/Estonia for consumption in Russia, which would be acceptable as of early 2020. In this regard, a regional perspective is also possible. Attribute procurement from the UAE for use in Qatar, Bahrain, Saudi Arabia or Oman would also be acceptable. This view is upheld in recent ISO 14067 discussions where market boundaries are defined as “produced within the country, or within the market boundaries of where consumption occurs if connected to the grid.”

Such procurement should take account of the following points:

1. Procurement from another market area, if it is considered unavoidable, should be kept to the minimum possible and should be publicly disclosed, along with clear reasoning as to why attributes could not reliably be purchased from within the same market area.
2. In markets with a recognised tracking system but limited available supply of renewable electricity from in-market installations, the value of the related certificates will rise as supply struggles to meet demand. In such instances, market players and end-users looking to maximise the impact of their purchases should seek to support the development of more renewable capacity by a) purchasing all available local certificates and b) considering options to support the development of new capacity. If such an approach does not address supply constraints in the short term, it is acceptable for consumers to temporarily procure attributes from other markets. However, end users in this situation should adopt procurement strategies that seek to secure same-market procurement as soon as possible. Such decisions and strategies should be described in public reporting material such as the CDP sustainability survey.

3. National regulations describing or restricting market boundaries must be adhered to in all circumstances. This type of legislation varies across market areas. In Europe, for example, attributes delivered via the Guarantee of Origin system must be redeemed (i.e. cancelled) on behalf of the consumer in the country where the electricity is consumed. It may also be the case that national governments restrict the ability to consume attributes from specific production sites inside or outside of their borders for various reasons.

5.2 Geographic (physical connections)

Background

Some stakeholders in renewable electricity markets and systems consider that purchases made from generation sites located on the same physical grid are inherently more reliable and have a greater impact on the development of renewable electricity. However, there are legal/energy market jurisdictions (see above) that cover more than one physical grid. This is particularly the case in large low- or middle-income countries where some grid regions are not connected.

Guidance

The lack of a physical connection should not prevent the purchasing of renewable energy certificates from within the same legal/energy market area (see above). It is considered that, particularly within markets, the increased production of cost-efficient renewable energy in one grid region and increased consumption of that power in another region would send a clear signal for greater in-market physical connections. In-market support for the development of more renewable electricity generation would, therefore, be maximised.

5.3 Attribute Age (vintage)

Background

Many market participants seek to maximise the impact and reliability of the renewable energy purchases they are making by cancelling attribute certificates as close to their production date as possible. The GHGP Scope 2 Guidance Document supports this practice, but has only limited guidance on the issue of attribute age, stating: “In order to ensure temporal accuracy of Scope 2 calculations, this criteria seeks to ensure that the generation on which the emission factors are based occurs close in time to the reporting period for which the certificates (or emissions) are claimed.”

Guidance

End-users and market players should consume electricity as close to the time of consumption as possible. This generally means that consumption in a specific calendar year should be matched with production in that same calendar year. However, where national or regional law differs, it may be possible to link

vintages within fiscal years, specific contracts or according to local certification requirements. Also, if end-users need to “true-up” procurement once final electricity consumption figures are known, it is acceptable for $\leq 10\%$ of the total production in the previous year to be consumed for three months following the end of the previous calendar year.

5.4 Market type (the role of regulatory surplus)

Background

EACs can be used to measure progress towards national renewable targets, in which case they are part of what are called compliance markets. These are markets where the cancellation of an EAC is proof of contributing to compliance with the target. Such compliance markets only exist in certain US states, where targets for renewables are set in the form of ‘portfolio standards’ under which suppliers have to ensure that a certain percentage of the power they supply to customers comes from renewable sources. Even in such compliance markets, consumers can voluntarily choose to buy a greater percentage of their power from renewables than that on offer from their supplier. In doing so, such consumers create what is known as regulatory surplus - the use of EACs over and above what is needed to meet a given target.

The EU does not use consumption-based renewable energy targets or compliance markets. At European level, targets are set for the amount of renewable energy produced either at a national level (under the 2009 Renewable Energy Directive - 2009/28/EC) or at the EU level (under the 2018 Renewable Energy Directive - 2018/2001/EC). Where compliance markets do operate in the EU, such as the Scandinavian El-cert scheme, they are purely created as a support scheme, and by purchasing the certificate no claim can be made about the consumption of renewable electricity.

Guidance

Frequently, consumers who are aware of the potentially beneficial impact of contributing to regulatory surplus in relevant US states look to make the same impact in other markets without compliance markets. These stakeholders sometimes fear that the inability to provide regulatory surplus in Europe, due to the design of the target system, means that the Guarantee of Origin cannot deliver robust claims. This is, however, incorrect from both a legal and a practical perspective. According to European law (2009/28/EC and 2019/2001/EC), GOs are used to prove renewable electricity consumption to the end-user. It is also established in law that a GO cannot be used for national target counting.

Contributing to regulatory surplus in a compliance market will increase the impact of renewable electricity purchases. But regulatory surplus is not relevant in other systems. Therefore, renewable electricity buyers need to be sure of whether they are consuming renewable power in a compliance market or not and act accordingly.

5.5 Contractual forms (different ways of buying renewable electricity)

Background

There are many different contractual means of buying renewable electricity. However, as noted above, electricity products cannot be physically delivered from a producer to a consumer in the way most other products can. Therefore, all contracts for the purchasing of renewable, or any other kind of electricity product, are essentially an agreement between a producer to place a certain amount of charge on the grid and a consumer to remove a certain amount of charge on the grid. These agreements can be bilateral. They can also go through intermediaries and/or open markets. The same principles apply to contracts for the attributes of a given MWh of charge added to the grid. Because there is no physical delivery of electricity there can also not be any physical link between an MWh of electrical charge and its attribute certificate. Nevertheless, some stakeholders argue that the more direct the contractual relationship is between producer and consumer, and the more closely tied the related attribute certificates are to the power they are certifying, the more reliable and impactful the renewable electricity purchase.

Guidance

No contract for the purchase of electricity that relies on a public grid can deliver a physical volume of power from a specific point of generation to a specific point of consumption. Likewise, no contract can physically tie attribute certificates to units of power since this physical power is distributed within the grid. All contracts for power and for attribute certificates rely on the same markets, rules and systems and, therefore, no contractual form is inherently more reliable than any other. Equally, no contractual form is inherently more impactful than another. The socio-economic impact of a purchase of renewable electricity depends on how much money flows from the consumer to the producer and the signal such a money flow provides for the building of more renewable power.

The revised Renewable Energy Directive (2018/2001/EC¹³) states that:

“Member States shall ensure that when a producer receives financial support from a support scheme, the market value of the guarantee of origin for the same production is taken into account appropriately in the relevant support scheme”

This means that the higher the price that a producer of renewable energy receives for the GOs they are issued, the less that publicly funded support schemes need to pay that producer for the energy they generate. This means

¹³. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2018.328.01.0082.01.ENG

that for the same amount of public money, more renewable energy production can be supported.

This money flow, and therefore the impact of a renewable electricity purchase, could be maximised by a consumer agreeing to a bilateral contract with a producer for the purchase of both power and its underlying attributes (proven via EACs). However, such a bilateral contract may not be the most efficient means of operating for either party. The producer may not have found the buyer willing to offer the highest price - thereby reducing their income and capacity to reinvest in more power capacity. Likewise, the consumer may not have found the best value power and attributes to meet their needs - leaving them with less budget to buy the kind of power and electricity product they want.

Therefore, it may be more impactful for both producers and consumers to go through intermediaries and/or buy and sell power separately from its attributes through different contracts with different counterparties. As in other areas, consumers need to be well informed when making such decisions and understand that the reliability and impact of renewable energy purchases are not dependent on the contractual form used. Rather, it is the other aspects highlighted in this guidance document that are more important.

Some standardised contracts have been developed to support market participants and the standardisation of trades of GOs. These include standard contracts for single and multiple delivery from RECS International, a master agreement for trading EECs GOs from the European Federation of Energy Traders (EFET), and a standard individual power purchase agreement for corporates and utilities from EFET, in cooperation with RE-Source. These contracts are periodically revised and updated to reflect market developments¹⁴.

5.6 Full-attribute ownership

Background

Tracking systems sometimes interact with other environmental markets which could, in some limited circumstances, lay claim to various attributes of renewable electricity production. For this reason, as tracking systems developed around the world, the concept of full-attribute ownership (or attribute aggregation) has become increasingly important. The GHGP Scope 2 Guidance Document states that it is possible to disaggregate attributes of production into multiple certificates. Since the publication of this document, tracking systems have been developed around the world that allow, either implicitly or explicitly, for RECs to be issued without the ability to claim all

14. Contact RECS International (secretariat@reecs.org), EFET (secretariat@efet.org), or RE-Source (<https://resource-platform.eu/contact/>) for more information on the standard contracts they provide.

of the attributes of the electricity production. In some locations, this means that a tracking system could allow for REC issuance in combination with a carbon offset or avoided emission statement for the same MWh. This can create confusion for end-users and could reduce confidence in the reliability of attribute tracking systems.

Guidance

This guidance considers full-attribute aggregation to be good practice. Any given energy attribute certificate should contain all the social, environmental and energy attributes related to a specific unit of electricity production. This includes all the associated carbon emissions, including any avoided emission claims. The tracking system itself should provide the necessary information (*see Quality criteria for tracking systems*) for end-users to be able to make purchases that meet these criteria.

5.7 Quality criteria for tracking systems

Background

The GHGP Scope 2 Guidance Document has clear requirements for determining if a specific attribute tracking system can be relied upon to verify the issuance, transfer, and use of energy attribute certificates that underpin the purchase of any unit of renewable electricity. These “quality criteria” are a list of requirements to which an attribute tracking system must adhere. GHGP Scope 2 Guidance Document states: “this guidance identifies a set of minimum criteria that relate to the integrity of the contractual instruments as reliable conveyers of GHG emissions rate information and claims, as well as the prevention of double counting”. When the document was published (February 2015) this reflected most of the developed systems at that time, including the US REC system, the European GO system and the International REC Standard (I-REC Standard). However, since the publication of the GHGP Scope 2 Guidance Document, there have been developments where national attribute tracking systems have been implemented which may not allow for reliable and/or robust renewables claims. This has brought with it questions as to the applicability of these developing national systems and their ability to deliver reliable and robust claims.

Guidance

This guidance has defined systems in which it is possible to make a robust claim. Stakeholders, consumers and market players should seek to use the recognised standards for attribute tracking and support the national authorities to develop robust local systems where they are not already in place.

5.8 Third-party verification

The need for third-party verification plays an important role in maximising the reliability of an attribute tracking system. By providing external scrutiny third-party verification can help to ensure that a system is being operated correctly and that consumer's claims about the power they are using are reliable. Third-party verification involves an audit of the procurement, consumption, use or claim of an organization. At its core, this verification is about openness and transparency. Consumers who are transparent about their renewable electricity procurement can add to its impact by indirectly increase public pressure on others to follow their lead. Third-party verification is unique and separate from verification by, for example, ecolabels. While some labelling organizations are also able to audit the claims made by end-users, this is not the role of all labels or labelling organizations.

The first step in public disclosure is to release figures and statistics regarding electricity consumption and attribute procurement - verified by a third party - in annual reports and other company publications. This is frequently combined with external surveys such as those made by CDP and RE100. Just as with financial accounting, environmental accounting requires a check by a third party and thus the external 'approval' of claims that are made.

6 Wrap-up

RECS International exists to support market participants in their efforts to maximise the reliability and impact of purchasing renewable electricity. This guidance is the document that informs those efforts. The core guidance sets out clear principals that should endure regardless of changes to an attribute tracking system. This guidance is supported by additional information that is available on request from the authors, such as a list of systems considered to be reliable¹⁵.

About the authors

This document was prepared by the secretariat of RECS International with the support of RECS International Board members. RECS International is a non-profit foundation that represents stakeholders who use energy-attribute tracking systems around the globe. RECS International is supported by more than 100 members based in over 20 countries.

¹⁵. Contact RECS International (secretariat@recs.org) or the I-REC Standard (secretariat@irecstandard.org) for more information.