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built environment

REPORT 

# RENEWABLE ENERGY PROCUREMENT

Key actions for built  
environment stakeholders



AUGUST 2023

UK Green Building Council  
[ukgbc.org](http://ukgbc.org)



# ACKNOWLEDGEMENTS

## UKGBC PROJECT TEAM

### AUTHORS

Tom Wigg  
Emily Dodkin

### EDITORS

Smith Mordak  
Yetunde Abdul  
Brooke Penman

## RENEWABLE ENERGY PROCUREMENT WORKING GROUP

UKGBC would like to sincerely thank all members of the Working Group for their feedback, assistance and contributions over the course of the project.

### ACCLARO ADVISORY

Brenda Sullivan

### AMBER

Nick Proctor

### AMPERSAND

Greg Borel

### BURGES SALMON

Emma Andrews

### BURO HAPPOLD

Ben Richardson

### CBRE

Rebekah  
Needham

### DERWENT LONDON

Samantha  
Carlsson

### GROSVENOR

Andy Haigh

### HOARE LEA

Laurence  
Johnson

### JLL

David Mead

### LANDSEC

Andy  
Mazzucchelli

### LOW CARBON ALLIANCE

Simon Crowe

### MACFARLANES

Alexander  
Crockford

### SAVILLS

Phil Pearson

### STANHOPE

Nils Rage

### SYZYGY

Kirsty Berry

### THE CROWN ESTATE

Kyle Gray

### TURLEY

James Blake

We would like to thank the organisations below for their input during the development of this suite of guidance.

**ARUP, CORNWALL INSIGHT, ECOTRICITY, ENERGYTAG, ENGIE UK, ETHICAL POWER, GOOD ENERGY, GOOGLE, GRANULAR, NPOWER BUSINESS SOLUTIONS, PERSE ENERGY, RE100, RE-SOURCE, RIPPLE ENERGY, TOTALENERGIES, UNIFY ENERGY, USWITCH, ZTP**

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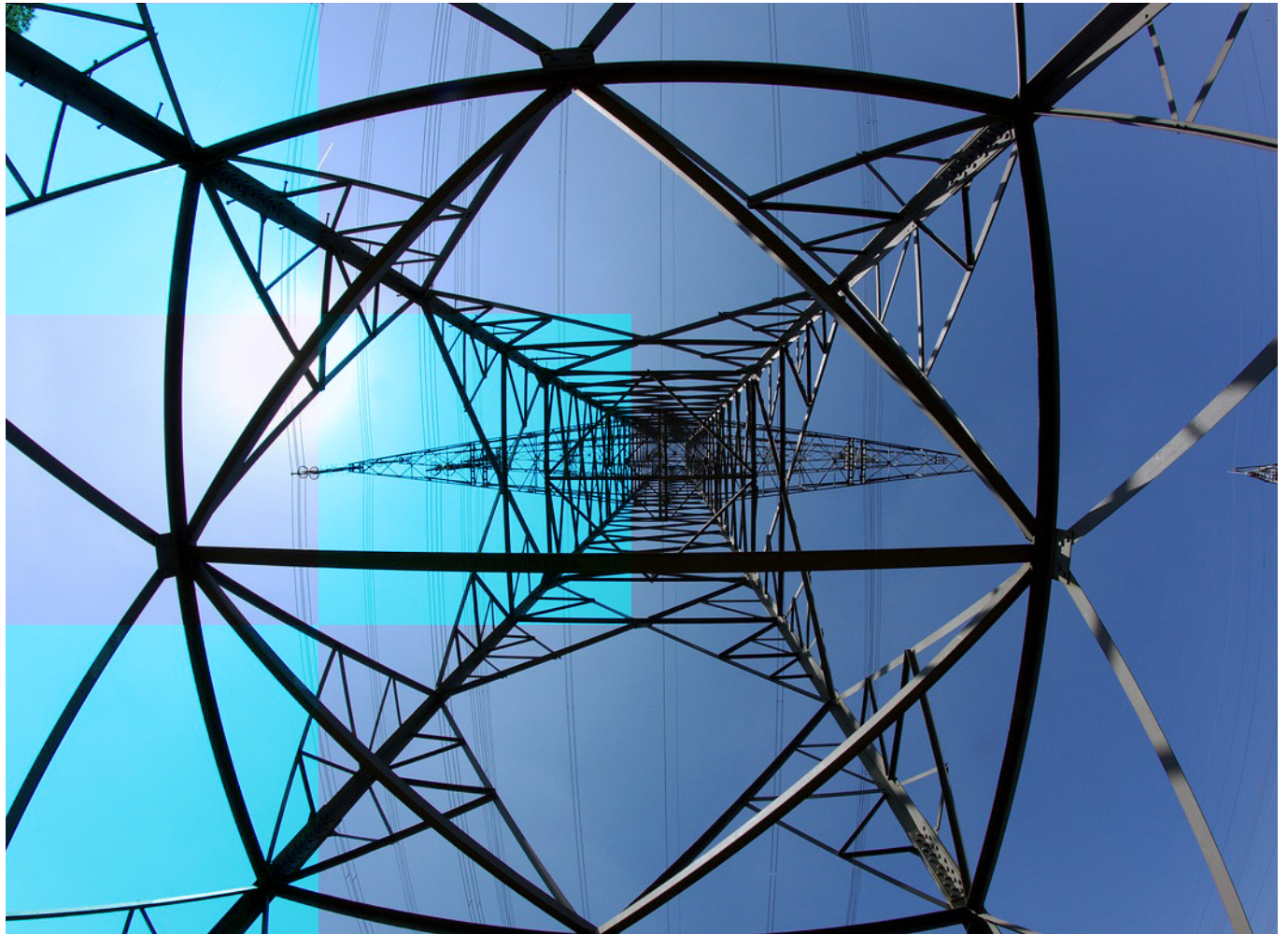
# REPORT 1

## KEY ACTIONS FOR BUILT ENVIRONMENT STAKEHOLDERS

### SECTION 1.0 INTRODUCTION

This report is the first in a series of four guidance documents on the topic of renewable energy procurement. Reports 1 to 3 focus on the 'How', giving practical advice, recommendations, and tools to enable built environment stakeholders to make informed procurement decisions that support the electricity system's decarbonisation. Report 4 explores the 'Why', providing the rationale behind the guidance and summarising the role of the built environment in enabling a net zero carbon energy sector.

In this report, we have outlined what stakeholders need to do, providing both general recommendations to secure procurement that aligns with the principles for quality renewable electricity procurement, as well as actions specific to different consumer types.

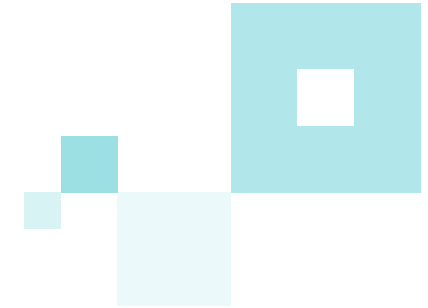


## SECTION 1.1 PRINCIPLES FOR QUALITY RENEWABLE ELECTRICITY PROCUREMENT

The quality of renewable electricity procurement can be established based on its performance against the following three principles:

- Renewable,
- Additionality,
- Time-matched

The best electricity procurement approaches will seek to maximise the extent to which they respond to these three principles. More information on the rationale behind the principles and subsequent recommendations can be found in Report 4.



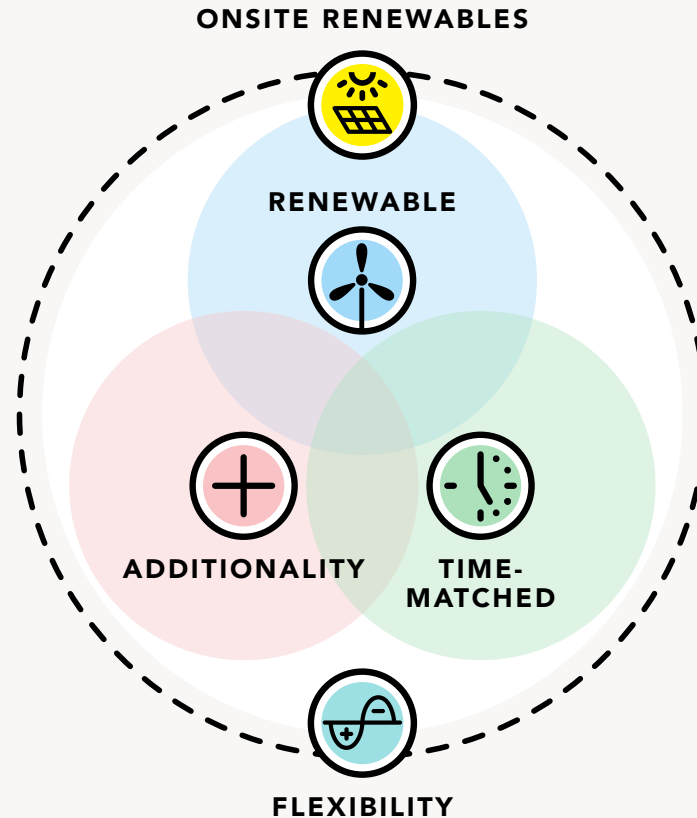
**DIAGRAM 1:** Diagram summarising the three principles for quality renewable energy procurement.

**(1) RENEWABLE**

The proportion of the electricity that is from renewable sources, supplied with the associated energy attribute (e.g., REGO).

**(2) ADDITIONALITY**

To what extent the procurement contributes to creating additional renewable capacity or supporting technologies/infrastructure (e.g., storage).



**(3) TIME-MATCHED**

The proportion of the electricity consumed that is matched with renewable generation at an hourly resolution or better.

**(+) ONSITE RENEWABLES AND FLEXIBILITY**

Supporting the three principles, buildings should maximise the amount of onsite renewable generation and be provided with the capability to respond flexibly to the availability of renewable electricity.



## RENEWABLE

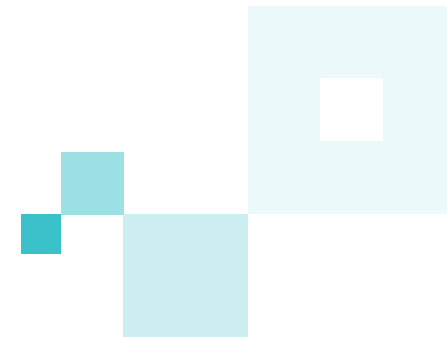
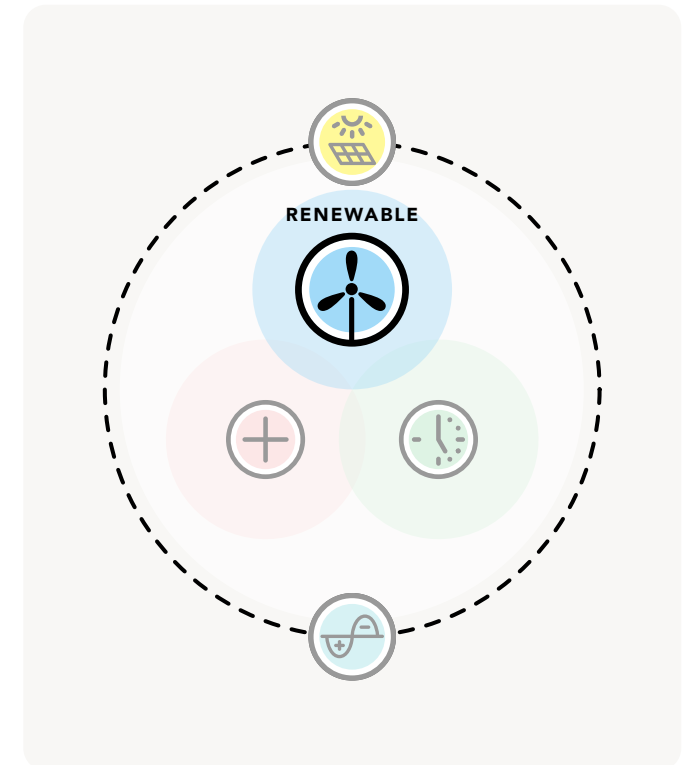
Electricity is renewable if it is generated using renewable sources of energy. Whilst there are many sources of renewable energy, some will have a more important part to play in decarbonising the electricity system and should be prioritised. Two key priority renewable sources are wind and solar.

The energy attribute is the certificate that is created when each unit of this renewable electricity is generated and represents the 'zero emissions' of that power. In the UK, Renewable Electricity Guarantee of Origin certificates (REGOs) are used.

REGOs do not need to be sold with their associated units of electricity megawatt-hour, and this can lead to issues of double counting of the emissions reductions from procuring renewable electricity. Purchasing these 'unbundled' REGOs also does not actively drive the electricity system to decarbonise. Whilst trading of certificates across borders is possible and is commonplace, it can lead to further issues with accurately accounting for emissions.

### RECOMMENDED ACTIONS:

- Match 100 per cent of electricity imported from the grid with REGOs from UK generators – all REGOs must be retired by you or on your behalf.
- Maximise the proportion of the electricity you consume that comes from renewable generators which are owned or contracted via PPA by your energy supplier or by you directly – a proportion equivalent to the UK grid's annual renewable mix should be targeted as a minimum **(41% in 2022)** [2].
- Ensure that your supplier does not include any self-owned or PPA-contracted fossil fuel generation in your supplied mix.



## ADDITIONALITY

**Unless procurement leads to the creation of new, additional renewable generation, any renewable procurement takes a share of the electricity that is already available, and there is no net change in emissions at a system level.**

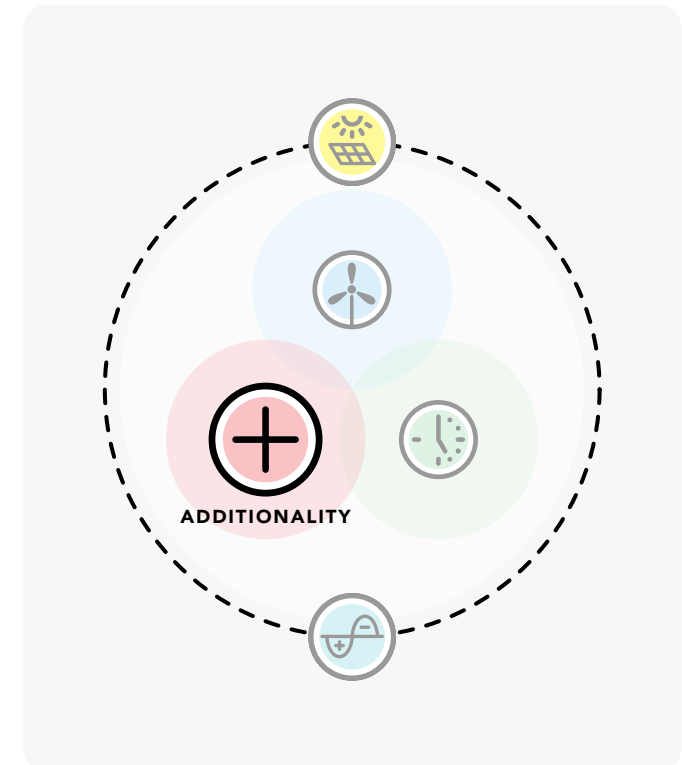
There is no formally agreed definition for additionality and demonstrating it can be challenging. However, there are many ways that different procurement approaches can respond to the principle of additionality (i.e., be shown to be contributing to the creation of new renewable capacity).

As well as new renewable generation, technologies such as energy storage are also needed to support a transition to a system with a high proportion of intermittent generation, to help supply meet demand. These supporting technologies should also be valued under the principle of additionality.

Future net zero energy system scenarios include substantially more rooftop solar photovoltaic (PV) capacity than currently exists. Onsite generation, such as solar PV, also provides the most robust and direct emissions reductions, meeting the principle of additionality. It should therefore be prioritised.

### RECOMMENDED ACTIONS:

- Maximise onsite generation, delivering the target levels of solar PV capacity for the given building type from the UK Net Zero Carbon Buildings Standard\* as a minimum, unless proven to be unachievable.
- For procurement offsite, offsite, owning or entering into a Power Purchase Agreement (PPA) with a new (unbuilt) or repowered unsubsidised renewable generator should be prioritised, as this provides the strongest additionality.
- As a minimum, PPAs directly procured should be with recently constructed (<3 years old) generators, owned and operated by companies that can demonstrate they are investing in the construction of new renewable assets.
- For electricity imported from the grid, procure a 'deep green' tariff/supply contract from an energy supplier (see Table 1 in Report 1).
- Ask your current or prospective energy supplier to qualify how they are meeting the principle of additionality in their operations, through investment in additional or repowered renewable capacity, storage, or R&D, as well as any other measures or actions they feel are relevant (see Report 3).
- A sub-hourly time-matched product should be prioritised over an equivalent annually-matched product.



\*The UK Net Zero Carbon Buildings Standard will include target levels of onsite solar PV for key building types and is expected to be published in early 2024.



## TIME-MATCHED

**Most renewable electricity products currently match demand with supply on an annual basis. However, the output from renewable generators will not necessarily match the demand profile of the consumer. This means the consumer will be exposed to a proportion of fossil fuels in their generation mix, even if they are procuring a '100 per cent renewable' product.**

Decarbonising the electricity system requires a varied portfolio of renewable generation, storage, and other flexibility technologies. However, current annual matching approaches do not appropriately value these solutions and only create demand signals which drive development of the cheapest forms of renewable generation – wind and solar.

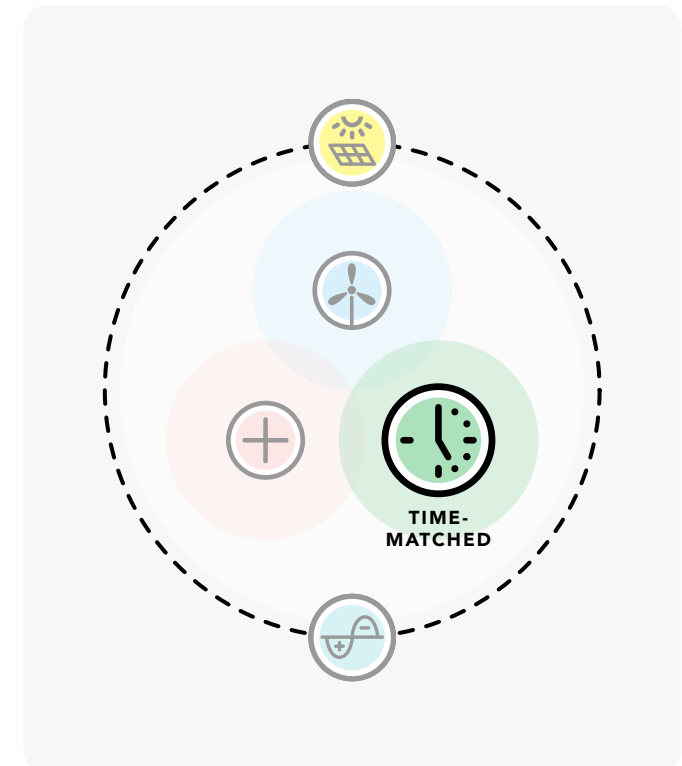
By tracking and matching demand with renewable electricity at an hourly resolution or better, the consumer can be more confident that they are actually receiving renewable electricity and consequently driving demand for renewables and storage that have the greatest value to the energy system.

The proportion of a consumer's demand that is matched with renewable supply at an hourly/sub-hourly level is the 'time-matched percentage'. This can be calculated based solely on the energy imported from the grid, or including the contribution from any on site generation, storage, and demand management.

Examples of energy products which use hourly/sub-hourly price or carbon signals already exist, and consumers can benefit from reduced energy cost and carbon by flexing their demand in response to these. Actively time-matched products are not widely available, but consumers can help develop these offerings through engagement with their energy suppliers.

### RECOMMENDED ACTIONS:

- Track your building or organisation's demand at an hourly resolution or better, as well as any onsite generation and storage.
- Engage your energy supplier or any renewable generators with whom you have a contract to understand what proportion of your grid imported electricity is currently matched with renewables at an hourly/sub-hourly level (i.e., determine your time-matched % excluding any onsite generation).
- Explore the possibility of engaging in an actively time-matched product with your current supplier or prospective suppliers and, if available, procure a time-matched product.
- Work with your energy supplier or generator to maximise your time-matched %, including any onsite generation, storage, and other demand management.
- If time-based energy attribute certificates (T-EACs) become available, seek to match the greatest proportion of your demand with sub-hourly certificates as possible.







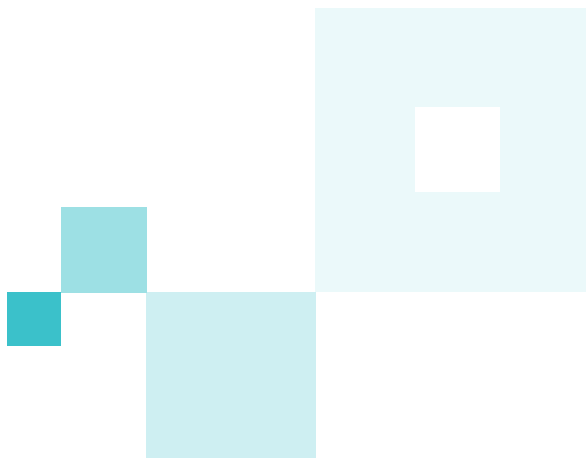
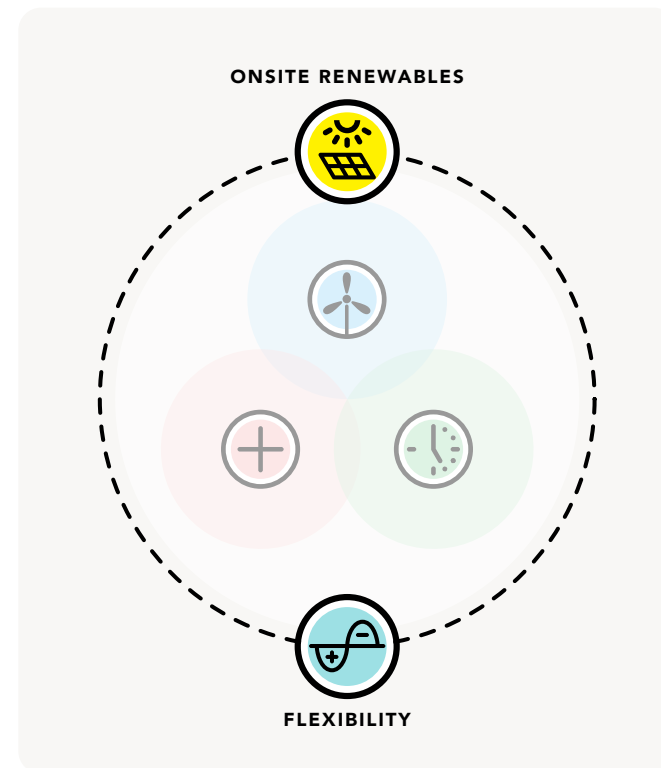
## ONSITE RENEWABLE GENERATION AND FLEXIBILITY

Whilst not strictly related to the procurement of energy, onsite generation and flexibility have an important role to play in decarbonising the electricity system, providing critical additional renewable generation and supporting ‘time-matched’ approaches by maximising the proportion of demand that is met by renewable energy in real time.



### RECOMMENDED ACTIONS:

- Maximise onsite renewable electricity generation.
- Implement active demand management through smart systems and appliances to utilise electricity generated onsite as far as possible and respond to the carbon intensity of the grid.
- Review the potential benefits of energy storage to maximise the self-consumption of any electricity generated onsite (ensuring other factors such as embodied carbon are considered).
- Onsite generation and flexibility should be used to maximise the proportion of energy consumed that is from renewable sources at an hourly/ sub-hourly level (i.e., time-matched % should be maximised).



## 'DEEP GREEN' ELECTRICITY TARIFF/SUPPLY CONTRACT

The v1 guidance identified 'high quality' green tariffs for commercial customers as those coming from suppliers who had achieved derogation from the Ofgem price cap for their domestic tariffs, as this requires them to evidence that they are investing any profit above the cap in the creation of additional renewable capacity. This was a useful but imperfect proxy, as it did not relate to the suppliers' tariffs for business customers. In addition, only three suppliers had achieved derogation at the time of publication.

For these reasons, this guidance identifies specific criteria a supplier and its product should meet in order to be considered high quality, or 'deep green' as it is termed from here. It is hoped that these criteria will:

- directly reflect a supplier's products for commercial customers, instead of using their domestic tariffs as a proxy;
- recognise a greater number of suppliers without compromising the integrity of the guidance, only rewarding those who robustly respond to the principle of additionality.

Table 1 defines the criteria an electricity tariff or supply contract should demonstrate to qualify as 'deep green', as well as justifying these criteria. These criteria may need to be refined in future to reflect feedback from industry and changes in the energy market.

**TABLE 1:**  
Criteria defining a 'deep green' electricity tariff/supply contract.

CRITERIA DEFINING A 'DEEP GREEN' ELECTRICITY TARIFF/SUPPLY CONTRACT	
CRITERIA	RATIONALE
REGOs from self-owned or PPA-contracted generation are bundled with the supplied power.	Reduces the risk that the renewable power is double-counted.
Power from self-owned or PPA-contracted fossil fuel generators is not included in the tariff mix.	Avoids the tariff/supply contract supporting the operation of fossil fuel generators, encouraging divestment.
The supplier can demonstrate they are not investing in any new fossil fuel assets.	Prevents supporting a supplier who is still investing in the construction of new fossil fuel generators, which needs to cease if we are to decarbonise the system in line with the current 2035 target.
Meets the criteria under (1) OR (2) below.	The principle behind these two options is to show that the supplier: <ol style="list-style-type: none"> <li>1. is actively supporting the creation of additional renewable capacity; or</li> <li>2. has already achieved a high proportion of renewables in their mix by substantially contributing to the creation of additional capacity historically.</li> </ol>
<ol style="list-style-type: none"> <li>1. The % of the supplier's overall supply volume (including all customers) that is met from self-owned or PPA-contracted renewable generation is greater than the proportion of total UK electricity generation which comes from renewables <b>(41% in 2022 [1])</b>. <b>AND</b> Newly constructed or repowered generators, that are owned by the supplier or directly contracted via a PPA, provide a net increase in the supplier's renewable supply volume equivalent to or exceeding the gross demand from new customers procuring their green products over an appropriate time period (e.g., 5 years).</li> </ol>	<p>Suppliers can claim to have provided direct financial support for self-owned or PPA-contracted renewable power, and these generators typically exist outside of government subsidies. Ensuring the proportion of self-owned or PPA-contracted renewables in the supplier's overall mix (including all customers) is greater than the grid average helps to prevent the supplier from favourably allocating their renewable electricity to their green products at the expense of their standard products.</p> <p>If the supplier can demonstrate that they are delivering additional renewable capacity to meet or exceed the gross demand from new customers over a given period, this supports that procuring their product does not cause the supply mix for existing customers to become any less green and that procuring their product actively stimulates the creation of new renewable generating capacity.</p>
<ol style="list-style-type: none"> <li>2. 75% of their overall supply volume (including all customers) is met from self-owned or PPA-contracted renewable generation with generators that were &lt;3 years old when the supplier purchased the generator or entered into the initial PPA.</li> </ol>	<p>If a supplier can demonstrate that a high proportion of their overall supplied mix (including power supplied to all their customers) is from generation that was less than 3-years old when they procured it, this suggests the supplier has invested substantially and early in the creation of additional generating capacity. This criteria is to ensure that suppliers who acted to decarbonise their supply when the market for renewable generators was more challenging are recognised.</p> <p>Note, the 3-year threshold for a generator to be considered additional is taken from the <b>EU Delegated Acts on Renewable Hydrogen [2]</b>.</p>

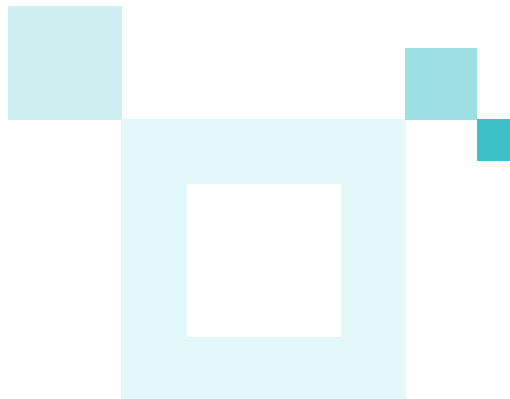
## SECTION 1.2 CONSUMER TYPE-SPECIFIC RECOMMENDATIONS

Making the most informed procurement decisions requires an understanding of the electricity system and energy markets, which are complex. It's also important for a customer to understand how their unique characteristics influence the options available to them. For these reasons, general recommendations – such as those provided in Section 1.1 – may not be relevant or applicable for all stakeholders.

To support organisations in understanding what actions may be appropriate for them, high-level recommendations for different stakeholder profiles are provided, including both actions that could be taken today and those that could be pushed for moving forward. The feasibility of these future actions is heavily dependent on the rate of market evolution, which will, in part, be driven by demand signals from corporate electricity customers. It is hoped that this guidance will help to provide such coordinated demand signals for better electricity products.

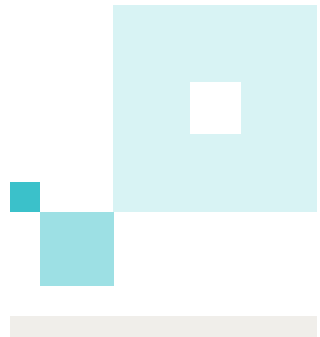
The recommended actions are framed around the three principles for quality renewable electricity procurement presented in Section 1.1 and the user profiles are based on the factors affecting procurement, identified in Report 2. The user profiles are differentiated through the size of the consumer, which influences both energy demand and the likely value of energy to the organisation. They are, however, a product of the range of factors noted, and every stakeholder's profile will be unique. For this reason, the user profiles and supporting recommendations are suggestions only and should be considered in the specific context of each corporate customer.

Further details on the rationale behind each of the recommended actions can be found in Report 4.



**TABLE 2:**  
Actions to secure better quality electricity procurement for three typical user profiles.

		USER PROFILE	SMALL (e.g., <5GWh/year)	MEDIUM (e.g., 5-25GWh/year)	LARGE (e.g., >25GWh/yr)
		PURSUING TODAY	<ul style="list-style-type: none"> <li>Start with renewable and additionality: Push for transparency from suppliers on where they source renewables and their contribution to additionality.</li> <li>Be transparent: Share information from suppliers to create demand signals for better products.</li> </ul>	<ul style="list-style-type: none"> <li>Demand time-matching: Press suppliers for time-matching information in addition to maximising alignment with the principles of renewable and additionality.</li> <li>Be transparent: Communicate level of time-matching currently happening at supplier or product level.</li> </ul>	<ul style="list-style-type: none"> <li>Drive maximum additionality: Support the construction of new generators by engaging in Power Purchase Agreements (PPAs) after maximising onsite energy production. Where attractive, consider investment in supporting technologies (e.g., storage).</li> </ul>
		PUSH FOR LONGER-TERM	<ul style="list-style-type: none"> <li>Move to demanding time-matching: Push existing suppliers to offer transparency on time-matching.</li> <li>Make active choices: Actively pursue procurement with a better-quality supplier based on the data you are securing and comparing.</li> </ul>	<ul style="list-style-type: none"> <li>Push for greater additionality: Consider sourcing renewable energy (PPA or through suppliers) as a collective/basket initiative to directly support new generation.</li> <li>Get more granular: Work with suppliers to understand and optimise customer-specific time-matching.</li> </ul>	<ul style="list-style-type: none"> <li>Flex demand: Actively manage demand and onsite generation to support supply-side time-matching and maximise the % of demand that is matched with renewable power at an hourly-/sub-hourly level.</li> <li>Bring others along: Work alongside suppliers and smaller companies to help de-risk collective PPA procurement options.</li> </ul>
USER PROFILE CHARACTERISTICS	VALUE OF ENERGY TO THE ORGANISATION		Energy is solely an operational consideration.	Energy is not a core business consideration but is still a part of their offering.	Energy is part of their business offering already or is a high proportion of the organisation's operational cost.
	ENERGY DEMAND		Energy demand is low, resulting in a high dependence on existing supplier products.	Energy demand is high enough to make demand signals somewhat material to suppliers.	Requires a large supply volume of energy, making demand signals very material to generators and suppliers.
	EXPERTISE		Does not have in-house expertise or an appointed procurement specialist.	Has an appointed procurement specialist but may not have in-house expertise.	Has expertise in-house to proactively engage in the energy market.
	CREDIT-WORTHINESS		Does not meet the threshold of credit-worthiness required for highly additional procurement routes and therefore needs significant support to de-risk.	Due to size, requires some form of de-risking to engage in certain procurement routes.	Has good credit, enabling engagement in most procurement routes.
	PERIODICITY		Only procures for shorter intervals linked to lease agreements.	Could engage in contract lengths of up to 5 years with suppliers but typically not longer.	Able to engage in long-term contracts to optimise pricing and risk.
	INFLUENCE		Individual sway is low and would benefit from working collectively to send material demand signals to suppliers.	Could be working on behalf of a collective of small energy users.	Able to make the business case for procurement options that are highly 'additional'.



## SECTION 1.3 SUMMARY

This report has proposed a number of general recommendations to respond to the three principles for quality renewable electricity procurement, as well as high level actions specific to three typical user profiles. More detail on the rationale behind the principles and recommendations can be found in Report 4.

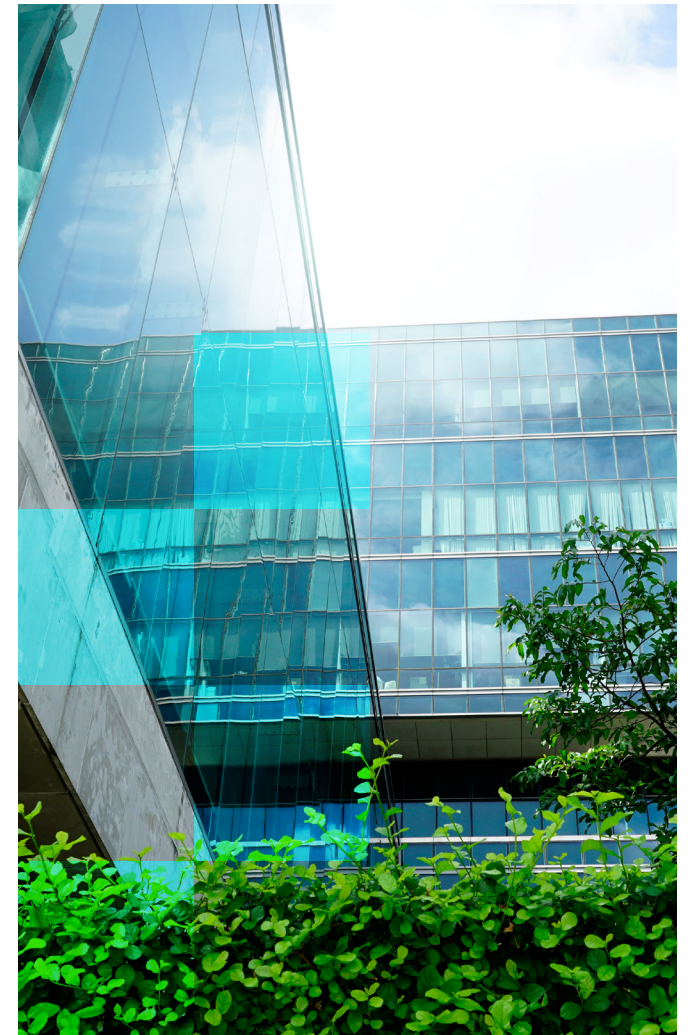
### TO MAXIMISE THE EXTENT TO WHICH PROCUREMENT CONTRIBUTES TO DECARBONISING THE ELECTRICITY SYSTEM, ORGANISATIONS SHOULD:

- maximise the proportion of their power which comes from renewable sources;
- demonstrate that their procurement is driving the development of new renewable generating capacity and supporting infrastructure (e.g., storage); and
- seek to understand their demand at a sub-hourly level, working with their energy supplier to match their demand to renewable supply as far as is feasible.

Deploying renewable generating capacity onsite and flexibly managing demand can support a procurement strategy by minimising the carbon impact of a building's operation and supporting the transition to a grid that can operate resiliently at zero carbon 100% of the time.

The procurement opportunities available to a built environment stakeholder depend on a number of factors (see Report 2), but all stakeholders can take action to positively contribute to decarbonising the electricity system. There are actions that can be taken today, such as engaging with energy suppliers to secure data that enables better comparison of the options available. This information can then be shared with the market to support others, helping to create coordinated demand signals for better quality information. As the market evolves in response to these demand signals and other levers, stakeholders are likely to be empowered to be more ambitious and demand more of their suppliers, such as engaging in more granular, time-matched products.

The aim of this suite of guidance, and particularly the recommendations in this report, is to demonstrate that all consumers – large or small – can take action to accelerate the electricity system's continued decarbonisation, which is critical to us delivering on our national Net Zero target.



## SECTION 1.4 GLOSSARY

TERM	DESCRIPTION
<b>24/7 CARBON-FREE ENERGY (24/7 CFE)</b>	Describes energy consumption where 100% of demand is matched with carbon-free supply at an hourly resolution or better.
<b>ADDITIONALITY</b>	Additionality describes the situation where an action results in an activity or intervention that otherwise would not have occurred had the action not taken place (i.e., additional relative to business-as-usual). In the context of procuring renewable electricity, additionality is achieved where greenhouse gas emissions reductions/removals occur as a result of new or repowered generating capacity that would not have happened in the absence of engaging in a given procurement route.
<b>ANNUAL-MATCHING</b>	The process by which electricity supply or consumption is matched with renewable power on an annual basis. This can be done by procuring Energy Attribute Certificates (EACs) only or by procuring the renewable power directly from a generator.
<b>BEHIND THE METER</b>	Describes anything that happens on the energy user's side of the meter (i.e., directly within the control of the asset).
<b>BIOENERGY CARBON CAPTURE AND STORAGE (BECCS)</b>	Electricity generation that is produced using biofuels where the resultant CO <sub>2</sub> is captured and stored long term, resulting in net negative carbon emissions.
<b>BIOFUELS/BIOMASS</b>	A fuel that is derived from biological/organic matter.
<b>BLUE HYDROGEN</b>	Hydrogen that is created by reforming natural gas and capturing the resultant CO <sub>2</sub> .
<b>BUNDLED POWER/ BUNDLED REGOS</b>	Renewable electricity where the power is sold/procured together with its associated Energy Attribute Certificates (EACs).
<b>CARBON CAPTURE, UTILISATION, AND STORAGE (CCUS)</b>	A technology via which CO <sub>2</sub> resulting from a process is captured and used for other process or stored long term.

TERM	DESCRIPTION
<b>CARBON FACTOR</b>	A measure of the emissions intensity of a process or fuel.
<b>CARBON-FREE ENERGY/ ELECTRICITY</b>	A term used to describe zero emissions sources of energy/ electricity generation. This includes renewables and nuclear power.
<b>CARBON-FREE ENERGY/ ELECTRICITY (CFE) SCORE</b>	A score between 1 and 100 reflecting the percentage of an energy consumer's demand that is matched with carbon-free supply at an hourly resolution or better, over the course of a year.
<b>CLEAN ENERGY SOURCES</b>	Energy sources that are zero carbon but not renewable.
<b>CARBON DIOXIDE EQUIVALENT (CO<sub>2</sub>E)</b>	CO <sub>2</sub> e or Carbon Dioxide Equivalent is a unit used to equate the emissions of other greenhouse gases (GHGs) to emissions of carbon dioxide (see Global Warming Potential). It also allows the impact of activities that result in the emissions of a variety of different GHGs to be described by a single number.
<b>CARBON EMISSIONS</b>	In the context of sustainability, Carbon Emissions is used as a collective term to describe the emissions of any GHGs.
<b>CARBON SEQUESTRATION</b>	Carbon Sequestration is the process by which carbon dioxide is removed from the atmosphere and stored within a material.
<b>CLIMATE CHANGE</b>	Climate Change refers to long-term shifts in temperatures and weather patterns. These shifts may be natural, such as through variations in the solar cycle. But since the 1800s, human activities have been the main driver of climate change, primarily due to burning fossil fuels like coal, oil and gas.
<b>CONTRACTS FOR DIFFERENCE (CFD)</b>	A long-term contractual agreement between a low carbon electricity generator and the UK Government which guarantees a "Strike Price" for all electricity generated, where the difference between the market price and strike price is either paid to the generator by the government or paid back to the government by the generator.
<b>CURTAILED/ CURTAILMENT</b>	Describes a situation where the output from variable renewable generators (such as wind turbines) is reduced in times where supply exceeds demand or the transmission infrastructure has insufficient capacity to accommodate the energy flows.

TERM	DESCRIPTION
<b>DECARBONISATION</b>	Decarbonisation is the process of reducing the net amount of Greenhouse Gas (GHG) emissions released to the atmosphere.
<b>DISTRIBUTION NETWORKS</b>	The electricity networks that manage the flow of electricity from the national transmission network to end customers.
<b>DISTRIBUTION NETWORK OPERATOR (DNO)</b>	A licenced company that manages the operation of a distribution network.
<b>DISTRIBUTION SYSTEM OPERATOR (DSO)</b>	An evolution of a Distribution Network Operator (DNO) which is necessitated by the more complex flows and management of electricity within the distribution networks.
<b>EMBODIED CARBON</b>	Embodied Carbon or Life Cycle Embodied Carbon emissions of a product are the total GHG emissions and removals associated with its manufacture, transport, installation, maintenance, and end of life treatment.
<b>ENERGY ATTRIBUTE CERTIFICATE (EAC)</b>	A certificate that provides information about the environmental attributes of one megawatt hour (MWh) of electricity. REGOs are the EACs used in the UK.
<b>FLEXIBILITY PROVIDER/ FLEXIBILITY SERVICES PROVIDER (FSP)</b>	An owner of assets, or an aggregator managing multiple assets, that can provide flexibility services by making temporary changes to the way they consume, generate, or store electricity when requested, to ensure continuity of supply.
<b>GENERATOR</b>	The operator of an asset that can generate electricity.
<b>GREENHOUSE GAS (GHG)</b>	Greenhouse Gases (GHG) are constituents of the atmosphere, both natural and anthropogenic, that absorb and emit radiation at specific wavelengths within the spectrum of infrared radiation emitted by the Earth's surface, the atmosphere, and clouds.
<b>GHG PROTOCOL</b>	GHG Protocol establishes comprehensive global standardized frameworks to measure and manage greenhouse gas (GHG) emissions from private and public sector operations, value chains and mitigation actions.

TERM	DESCRIPTION
<b>GLOBAL WARMING POTENTIAL (GWP)</b>	Some GHGs have a substantially higher GWP than carbon dioxide, meaning the same quantity of emissions has a greater impact to global heating. For example, methane's GWP is 25, meaning 1 tonne of methane trap 25x more heat than 1 tonne of carbon dioxide.
<b>GREEN GAS</b>	A gaseous fuel created by processing organic matter by bacteria.
<b>GREEN HYDROGEN</b>	Hydrogen that is created by electrolysing water using renewable electricity.
<b>GREEN TARIFF</b>	A term used to describe a range of energy products offered by suppliers that, as a minimum, have been fully matched with Energy Attribute Certificates (EACs).
<b>GUARANTEES OF ORIGIN (GOS)</b>	The Energy Attribute Certificate (EAC) scheme used in central Europe, closely related to the UK REGO scheme.
<b>HYDROGEN</b>	A gaseous fuel that combusts to produce water.
<b>IN FRONT OF THE METER</b>	Describes anything that happens on the energy system side of the consumer's meter (i.e., not in directly control of an asset).
<b>INTERMITTENT RENEWABLE GENERATION</b>	Renewable electricity generators that depend on variable renewable energy sources, such as wind and solar.
<b>IPCC</b>	The Intergovernmental Panel on Climate Change (IPCC) is the United Nations body for assessing the science related to climate change.
<b>LIQUID AIR ENERGY STORAGE</b>	A form of energy storage where air is compressed into a liquid form and stored in insulated containers. When needed, the liquid air is evaporated and this energy is used to generate electricity, typically through a turbine.
<b>LITHIUM-ION BATTERY</b>	A form of electrical energy storage which uses the reversible reduction of lithium ions in the material to store electricity.
<b>LOCATIONAL MARGINAL PRICING</b>	A way for wholesale electricity prices to reflect the value of the energy at different locations, accounting for the patterns of load, generation, and the physical limits of the transmission system.

TERM	DESCRIPTION
<b>LOCATION-BASED CARBON ACCOUNTING</b>	A methodology for calculating carbon emissions based on the carbon intensity of the local grid area where the electricity usage takes place.
<b>MARGINAL EMISSIONS FACTOR</b>	A measure of the emissions caused by a small change in demand on the system, reflecting the fact such changes in demand do not increase or decrease the demand for all generation types equally.
<b>MARGINAL PRICING</b>	In the context of electricity procurement, marginal pricing is an approach to pricing electricity that sets the price of all electricity based on the cost of meeting the marginal demand (i.e., the final bit of demand on the system).
<b>MARKET-BASED ACCOUNTING</b>	A methodology for calculating carbon emissions based on the specific procurement decisions made by an electricity customer (e.g., claiming the benefit of Energy Attribute Certificates).
<b>NATIONAL GRID ELECTRICITY SYSTEM OPERATOR (ESO)</b>	The licenced company responsible for the management of the GB electricity system's transmission network.
<b>NET ZERO</b>	Net Zero is where all related Greenhouse Gas (GHG) emissions have been reduced in line with a science-based target which aligns with what has been determined to be necessary to stand a reasonable chance of limiting the global temperature increase to 1.5°C above pre-industrial levels as a minimum. These residual emissions are subsequently responsibly offset to achieve a sum total of zero emissions.
<b>OPERATIONAL CARBON</b>	Operational Carbon are the GHG emissions arising from all energy consumed by a product in-use, over the product's whole life cycle.
<b>PEAK DEMAND</b>	The time of greatest overall energy demand. This can be measured at an asset-level or a system-level.
<b>POWER PURCHASE AGREEMENT (PPA)</b>	A contractual arrangement for power between a generator and a supplier or consumer.
<b>RENEWABLE CERTIFICATES</b>	A general term for Energy Attribute Certificates (EACs).

TERM	DESCRIPTION
<b>RENEWABLE ELECTRICITY GUARANTEE OF ORIGIN CERTIFICATES (REGOS)</b>	The Energy Attribute Certificate (EAC) scheme used in the UK.
<b>RENEWABLE ENERGY CERTIFICATES (RECS)</b>	The Energy Attribute Certificate (EAC) scheme used in the USA and Canada.
<b>RENEWABLE ENERGY</b>	Energy derived from natural sources that are replenished at a higher rate than they are consumed.
<b>RENEWABLE GENERATION</b>	A general term for any electricity generated using renewable sources of energy.
<b>RESIDUAL EMISSIONS FACTOR</b>	A measure of the emissions intensity of electricity from a given system after all electricity 'claimed' via Energy Attribute Certificates (EACs) has been removed from the mix (i.e., the emissions intensity of the residual grid mix).
<b>RESIDUAL GRID MIX</b>	The mix of generation supplying the system after all electricity 'claimed' via Energy Attribute Certificates (EACs) has been removed from the mix.
<b>RETAIL MARKET</b>	The market through which energy customers procure energy from a supplier.
<b>SCOPE 1</b>	Direct emissions from sources that are controlled or owned by an organisation. This includes any onsite combustion (e.g., from gas boilers for heating, and from company vehicles).
<b>SCOPE 2</b>	Indirect emissions that result from the purchase of electricity, heat, or steam that is generated offsite.
<b>SCOPE 3</b>	Indirect emissions from sources that aren't owned or controlled by an organisation, but that they indirectly affect in their value chain.
<b>SELF-OWNED GENERATION</b>	Electricity generating capacity that is owned and operated directly by the referenced party. This could be energy suppliers or building owners.
<b>SUB-HOURLY</b>	At a resolution of less than one hour.
<b>SUBSIDISED GENERATION</b>	Electricity generation that is financially supported by government or other schemes, such as the Contracts for Difference (CfDs).



TERM	DESCRIPTION
<b>SUPPLIERS</b>	Companies that procure energy and supply energy to customers on the retail market.
<b>TARIFFS</b>	The price at which energy is sold by a supplier to a customer.
<b>TIME-BASED ENERGY ATTRIBUTE CERTIFICATES (T-EACS)</b>	Energy Attribute Certificates (EACs) that include the time of generation at an hourly resolution or better.
<b>TIME-MATCHED</b>	Electricity demand that is matched with renewable supply at an hourly resolution or better.
<b>TOTAL GENERATION MIX</b>	The mix of all generation types supplying the system over a given time period.
<b>TRANSMISSION NETWORK</b>	The high voltage system for the transmission of power from large-scale generators to the distribution networks.
<b>UNBUNDLED POWER</b>	Renewable electricity that is sold without the associated Energy Attribute Certificates (EACs).
<b>UNBUNDLED REGOS</b>	Energy Attribute Certificates (EACs) that are sold separately to their associated power.
<b>UNSUBSIDISED GENERATION</b>	Generation that is not financially supported by government or other schemes, such as the Contracts for Difference (CfDs).
<b>WASTE INCINERATION</b>	A process where household waste is incinerated to boil water which is subsequently passed through a turbine to generate electricity.
<b>WHOLE LIFE CARBON</b>	Whole Life Carbon emissions are the sum total of all the associated GHG emissions and removals, for the embodied, operational and disposal of a product through its whole life cycle.
<b>WHOLESALE MARKET</b>	The general term for the market on which electricity is traded by generators and suppliers.
<b>ZERO CARBON</b>	Zero Carbon is where there are no related Greenhouse Gas (GHG) emissions.



## SECTION 1.5 REFERENCES

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The voice of our sustainable  
built environment

**UK GREEN BUILDING COUNCIL**  
THE BUILDING CENTRE  
26 STORE STREET  
LONDON WC1E 7BT  
INFO@UKGBC.ORG



UK Green Building Council  
[ukgbc.org](http://ukgbc.org)

COMPANY REGISTRATION NUMBER 01029239  
CHARITY REGISTRATION NUMBER 1135153