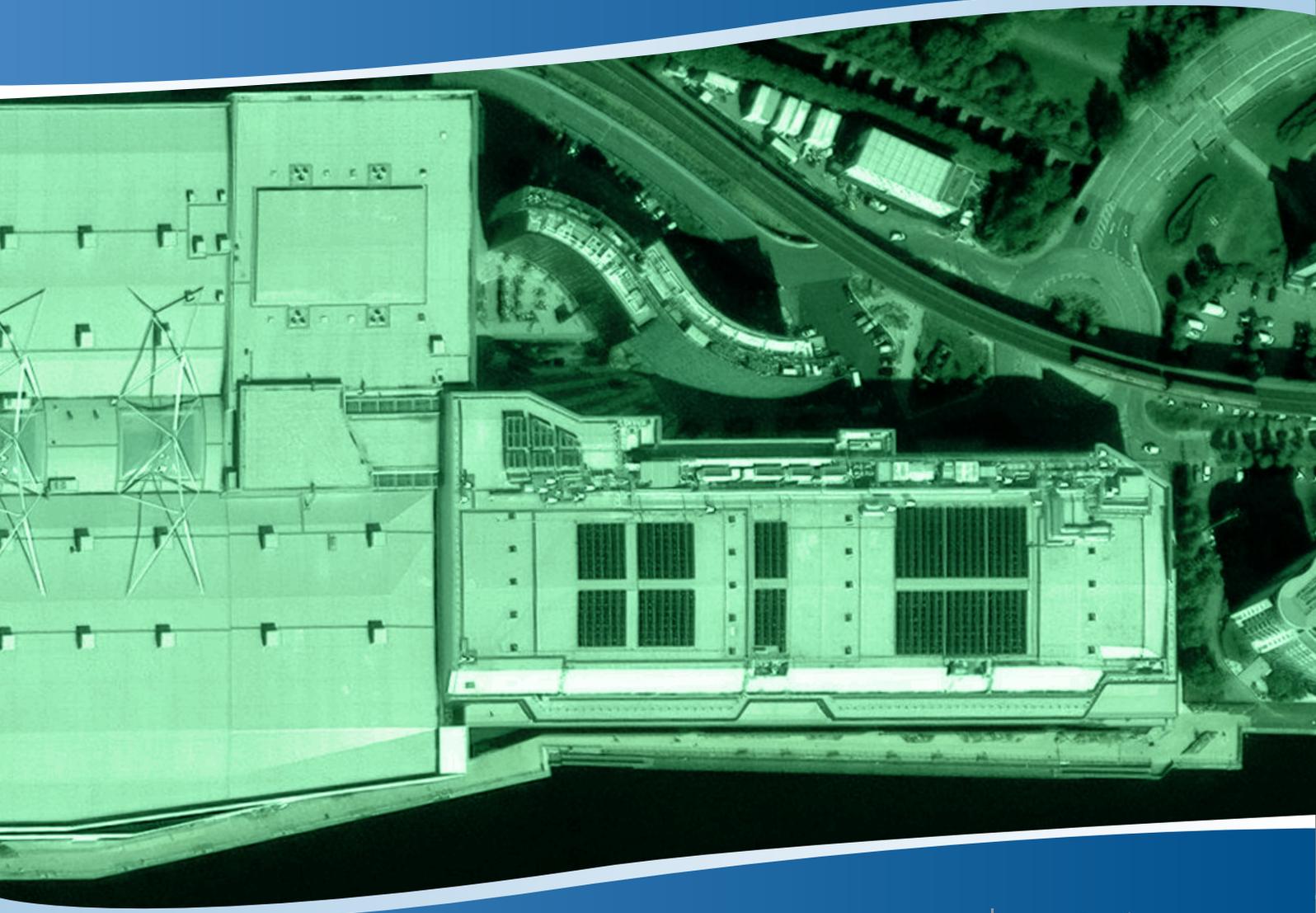




The Lab

Technical Briefing Note

Solar PV & SECR



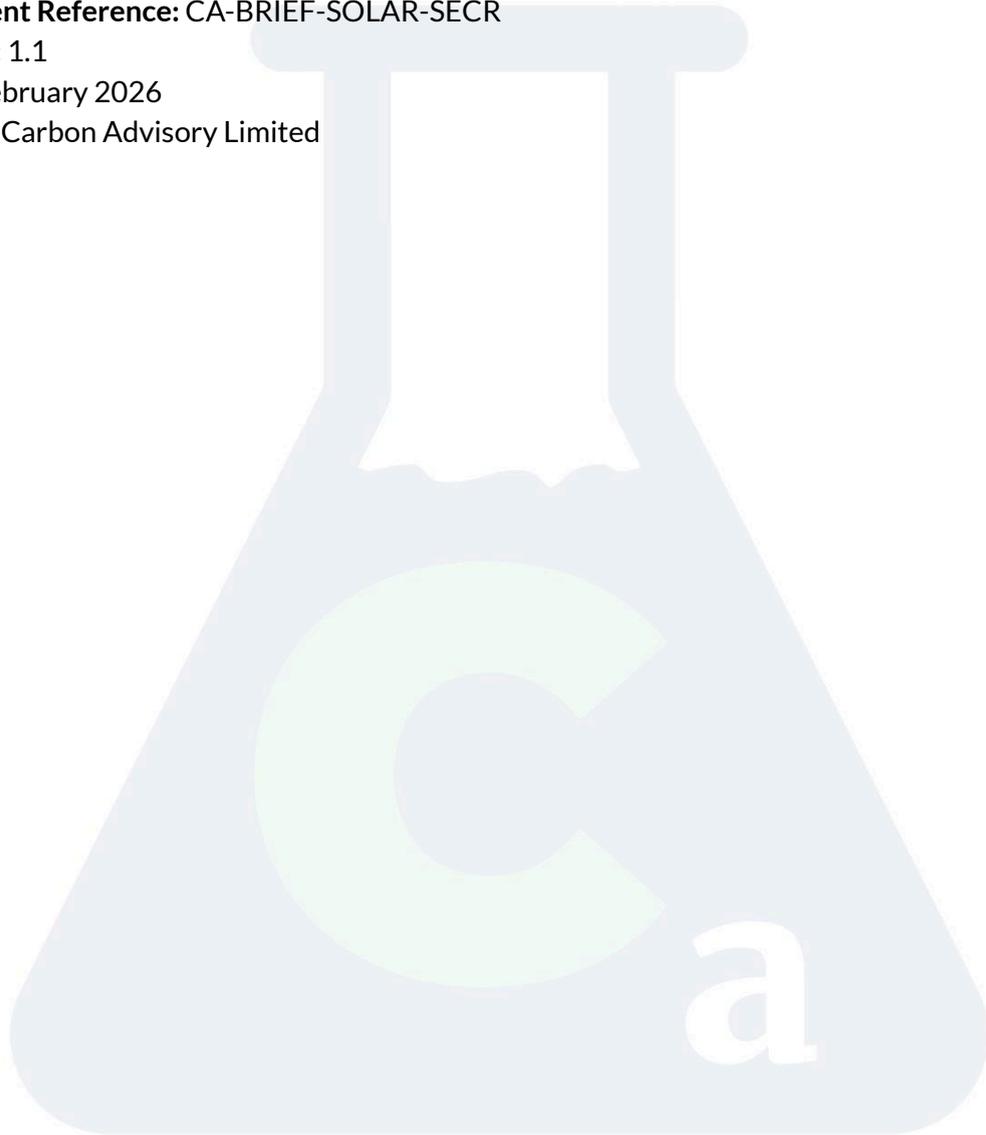
Technical Requirements: Mandatory Reporting of On-site Solar PV in SECR

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About This Technical Methodology Note (TMN)

Context & Purpose

This document forms part of the Carbon Advisory Open Source Library. It contains the specific technical formulas, boundary definitions, and calculation hierarchies used by our internal consultants to deliver high-level carbon management advice.

For over 20 years, these methodologies have been applied across the NHS, central government, police forces, and blue-chip corporations. We have released them into the public domain to ensure that rigorous, accurate measurement is accessible to every sustainability professional, regardless of budget.

How to Use This Document

This note is designed for Sustainability Practitioners with a working knowledge of GHG Protocol and ISO 14064 principles. It provides the "Consultancy-Grade" approach to specific, complex scenarios.

Need Technical Support?

While this methodology provides the theoretical framework, applying it to unique operational data can be complex. If you require a second pair of eyes to validate your calculations, or a "Power Hour" to adapt this methodology to your specific site, Carbon Advisory offers paid technical support services.

1. Executive Summary

For companies falling under the **Streamlined Energy and Carbon Reporting (SECR)** regulations (specifically Large Unquoted Companies), the legal obligation to report solar energy varies significantly based on how the system is funded and contracted.

While "legal manoeuvres" exist to exclude self-generated energy from mandatory tables, relying on these minimises the visible return on investment (ROI) of your decarbonisation strategy.

This note outlines the contractual distinctions between **Ownership** and **Power Purchase Agreements (PPAs)** and recommends a "Best Practice" reporting approach that maximizes transparency and reputational benefit.

Note: Reporting Obligations for Quoted Companies are different: Under the SECR framework, quoted companies must report the "underlying global energy use" used to calculate their GHG emissions. This briefing document focuses on un-Quoted large companies.

2. The Core Distinction: Ownership vs. PPA

The trigger for mandatory SECR reporting for un_Quoted large companies is the "**purchase of electricity**". This definition creates a strict divide in how solar energy is treated.

Scenario A: Capital Purchase (CapEx / Self-Funded)

Contract Status: You own the asset. The electricity generated is not "purchased" from a third party; it is self-generated.

SECR Obligation:

- **Mandatory:** You are **not legally required** to include self-generated solar kWh in your mandatory "UK Energy Use" table. You only strictly need to report purchased electricity.
- **Voluntary:** You *may* report it voluntarily.

Scenario B: Power Purchase Agreement (PPA / Private Wire)

Contract Status: A developer owns the asset. You sign a long-term contract to buy the electricity generated at a fixed rate (e.g., 10p/kWh).

SECR Obligation:

- **Mandatory:** Because you are technically "**purchasing electricity**", these kWh **must** be included in your mandatory "UK Energy Use" figure.

3. Contractual Intricacies: The "Green" Attribute (REGOs)

Merely consuming solar power does not automatically allow you to report "zero carbon" in all contexts. The contractual handling of **Renewable Energy Guarantees of Origin (REGOs)** is critical.

- **The Golden Rule:** To claim the carbon benefit in your **Market-Based** emissions report, you must possess and retire the REGOs associated with the solar generation.
- **Private Wire PPA Risk:** In some PPA contracts, developers may offer a lower unit price in exchange for keeping the REGOs to sell elsewhere.
- **Impact:** If you do not hold the REGOs, you have purchased "null power." Under GHG Protocol rules, you must treat this electricity as having the **national grid average carbon intensity**, effectively wiping out the reportable carbon benefit of your solar array.
- **Recommendation:** Ensure PPA contracts explicitly state that REGOs are "**bundled**" (transferred to you) with the electricity.

Mandatory registration requirements for REGOs and Solar Installations are detailed in the appendix.

3a. The Two-Method Problem: Location-Based vs. Market-Based Reporting

A critical nuance that is frequently overlooked: the carbon benefit of your solar array is **not automatic under all reporting methods**. GHG Protocol Scope 2 guidance requires dual reporting – a **Location-Based** figure and a **Market-Based** figure – and solar PV is treated very differently under each.

Location-Based Method

The location-based method uses the **national grid average emission factor** (published annually by DESNZ) applied to all electricity purchased on site, regardless of source.

Impact on Solar Reporting:

Under this method, PPA solar electricity is treated as if it had been drawn from the national grid. You receive **no carbon reduction credit** for purchasing renewable electricity. The avoided emissions simply do not appear in your location-based figure.

Example: A site consuming 1,000,000 kWh of grid electricity and 250,000 kWh of self-generated solar must apply the national grid factor to the full 1,250,000 kWh of total consumption under the location-based method.

Market-Based Method

The market-based method reflects the **contractual source** of your electricity. This is where REGOs and PPAs become decisive (see Section 3).

- **Owned Solar with REGOs retired:** the self-generated kWh can be reported at **0 gCO₂e/kWh**, delivering a visible, auditable carbon reduction.
- **PPA with bundled REGOs:** same outcome – the purchased kWh are reported at **0 gCO₂e/kWh**.
- **PPA without REGOs:** the electricity is treated as "null power" and reverts to the **grid average factor**, identical in outcome to the location-based method.

Why This Matters for Your SECR Disclosure

Many UK reporters default to the location-based method because it is simpler to calculate. If your organisation does this, your solar installation will produce **zero reduction in your reported tCO₂e figure**, even if it is generating significant clean energy.

Reporting Method	Owned Solar (REGOs held)	PPA (REGOs bundled)	PPA (REGOs not held)
Location-Based	0 gCO ₂ e/kWh	Grid average factor applies	Grid average factor applies
Market-Based	0 gCO ₂ e/kWh	0 gCO ₂ e/kWh	Grid average factor applies

Recommendation: Always report **both methods** in your SECR disclosure. The delta between your location-based and market-based figures is the most powerful single number for demonstrating the tangible carbon impact of your renewable energy strategy to investors and stakeholders.

4. Strategic Reporting: Moving Beyond Minimum Compliance

While Large Unquoted companies *can* legally omit self-generated solar (Scenario A) from their mandatory metrics, doing so creates a distorted picture of energy efficiency.

Why "Avoidance" is a Poor Strategy:

1. **Distorted Efficiency:** If you only report Grid Imports, your energy intensity ratio (e.g., kWh per £m turnover) will look artificially low, but it won't reflect your *true* operational efficiency.
2. **Narrative Disconnect:** You are legally mandated to report "Energy Efficiency Actions". It is inconsistent to describe a major solar installation in your narrative text but exclude the resulting generation figures from your data table.
3. **Investor Transparency:** Stakeholders increasingly expect to see the "Total Energy Consumption" (Grid + Renewable) to understand the organization's resilience and transition risk.

Recommended "Best Practice" Approach:

We advise a **Dual-Line Reporting** strategy in your SECR disclosure. This satisfies legal minimums while highlighting your solar success.

Draft Template for SECR Table:

Reporting Item	2025/26 (kWh)	Mandatory?	Notes
Grid Electricity	1,000,000	YES	Purchase of electricity.
Gas Combustion	500,000	YES	Combustion of fuel.
Transport Fuel	50,000	YES	Purchase of fuel.
Onsite Solar (Self-Gen)	250,000	YES for Quoted NO for un-Quoted	Included for transparency to show total demand.
Total Energy Use	1,800,000		Combines mandatory + voluntary data.

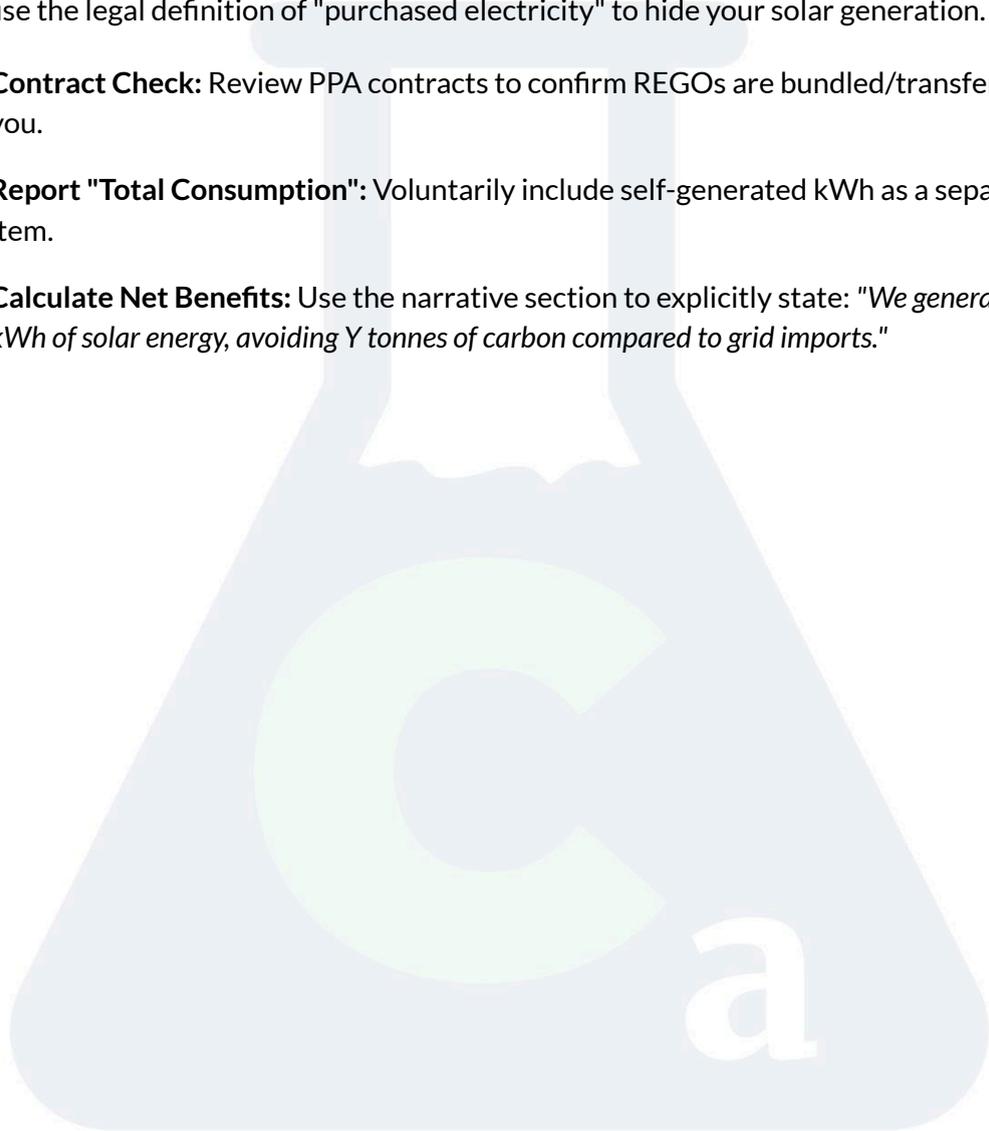
5. Summary of Impacts

Feature	Ownership (CapEx)	PPA (OpEx)
SECR Energy (kWh) Reporting	Voluntary (Self-Gen)	Mandatory (Purchased)
Market Based Emissions (tCO₂e) Reporting	Zero emissions (Scope 2) <i>if REGOs held</i>	Zero emissions (Scope 2) <i>if REGOs held</i>
Location Based Emissions (tCO₂e) Reporting	Grid Average emissions	Grid Average emissions
REGO Risk	Low (You typically receive them automatically)	Medium (Must be specified in contract)
Narrative Requirement	Mandatory (Must list installation as an efficiency action)	Mandatory (Must list procurement as an efficiency action)

6. Client Recommendation

Do not use the legal definition of "purchased electricity" to hide your solar generation. Instead:

1. **Contract Check:** Review PPA contracts to confirm REGOs are bundled/transferred to you.
2. **Report "Total Consumption":** Voluntarily include self-generated kWh as a separate line item.
3. **Calculate Net Benefits:** Use the narrative section to explicitly state: "*We generated X kWh of solar energy, avoiding Y tonnes of carbon compared to grid imports.*"



Appendix: Mandatory Registration & REGOs for On-site Solar

While the un-Quoted company **reporting** of on-site solar generation in your SECR tables is largely voluntary (for owned assets), the **registration** of the asset itself is subject to strict mandatory compliance rules. Failing to register correctly can lead to your system being disconnected from the grid or insurance becoming void.

Here is the breakdown of what is legally mandatory versus what is commercial best practice.

1. Mandatory: Grid Connection Registration (DNO)

You cannot simply "plug in" a commercial solar array. You have a strict legal obligation to register the asset with your local **Distribution Network Operator (DNO)**—the company that manages the cables in your region (e.g., UK Power Networks, Northern Powergrid).

The type of registration depends on the size of your system:

- **G98 Notification (Small Scale):**
- **Threshold:** Up to 16A per phase (approx. 3.68kW single-phase).
- **Process:** "Connect and Notify." You can install first, but **must** notify the DNO within **28 days** of commissioning.
- **Mandatory? Yes.**
- **G99 Application (Commercial Scale):**
- **Threshold:** Anything above 16A (3.68kW) per phase. Most commercial rooftops fall here.
- **Process:** "Apply to Connect." You **must** submit a G99 application and receive formal approval **before** installation begins.
- **Mandatory? Yes.** If you install a large system without prior G99 approval, the DNO has the legal power to force you to disconnect it.

2. REGOs: Voluntary to Issue, Mandatory to Claim

Are REGOs (Renewable Energy Guarantees of Origin) mandatory?

- **To Operate: No.** You can run a solar system without ever touching a REGO.
- **To Report "Zero Carbon": Yes.** If you want to report your solar electricity as **0 gCO₂e/kWh** in a "Market-Based" Scope 2 report, possessing the REGOs is the only valid evidence.

The Registration Process for REGOs

If you want to generate and hold your own REGOs (to prove your green credentials), you must actively register the asset with **Ofgem**:

1. **Register:** Create an account on the **Renewables and CHP Register**.
2. **Accredit:** Submit details of your installation (capacity, location, commissioning date) to get an accreditation ID.
3. **Submit Data:** You must submit meter readings to Ofgem (monthly or quarterly).
4. **Issue:** Ofgem issues 1 REGO per MWh of generation.

Strategic Advice: Even if you do not sell the REGOs, we strongly recommend registering for them. They provide auditable proof of your generation volumes for your SECR "Energy Efficiency Action" narrative and prevent any accusations of greenwashing.

3. Other "Mandatory" Compliance Checks

Area	Requirement	Status
MCS Certification	Microgeneration Certification Scheme. required to set up export tariffs (SEG).	Voluntary (for operation), but Mandatory if you want to be paid for exports.
Planning Permission	Commercial solar often falls under Permitted Development , but prior approval is required for systems >1MW or on listed buildings.	Mandatory check required.
Business Rates	Solar panels can increase the rateable value of your property, potentially increasing your business rates bill.	Mandatory to declare to the Valuation Office Agency (VOA).

Summary of Action Points

1. **Check G99:** Ensure your facilities team has the **G99 Acceptance Letter** from the DNO on file. This is your primary "license to operate."
2. **Register with Ofgem:** If you haven't already, register the asset with Ofgem to start generating REGOs. This costs nothing but administrative time and secures the "green value" of your power.
3. **Data Flow:** Ensure the meter readings sent to Ofgem match the kWh figures used in your SECR reporting. Consistency is key for verification.

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