The following is taking from a December 2015 study commissioned by the Green Gas Certification Scheme (GGCS), and undertaken by Ecofys.

A full copy of the report can be obtained by emailing info@greengas.org.uk

Further information on the GHG Protocol Scope 2 Quality Criteria is available in the following document: *GHG Protocol Scope 2 Guidance: An amendment to the GHG Protocol Corporate Standard* (January 2015) – specifically Table 7.1 and pages 60 – 65.

The Greenhouse Gas Protocol

The Greenhouse Gas Protocol is the most widely used international accounting tool for government and business leaders to understand, quantify and manage GHG emissions. It serves as the foundation for nearly every GHG standard and program in the world, including the current Defra Greenhouse Gas Reporting Guidelines.

The GHG Protocol standards on "corporate accounting" define how organisations should report the GHG emissions associated with their operations. GHG emissions of natural gas, or biomethane use, are also covered in these inventories. Specifically, a company's emissions are divided into so called, "direct" and "indirect" emissions and further divided into three "scopes". Direct emissions are included in Scope 1. Indirect emissions are included in Scope 2 and Scope 3. Scope 3 emissions are also divided into "upstream" and "downstream" emissions, further divided into 15 categories. The distinction is based on the financial transactions of the reporting company.

*Following the GHG Protocol the **direct** emissions related to the incineration of natural gas (or biomethane), are included as part of Scope 1 as long as the gas is combusted by sources that are owned or controlled by the reporting company. However, the **indirect** upstream (or life cycle emissions) associated with the gas use are also relevant, and are reported under **Scope 3, category 3: Fuel and energy related activities**. This category includes emissions related to the production of fuels and energy purchased and consumed by the reporting company in the reporting year that are not included in Scope 1 or Scope 2. For biomethane this includes the emissions associated with the extraction or cultivation of raw materials, land use change (if relevant), processing, transport and gas distribution (including losses). The GHG Protocol also requires that biogenic emissions (CO_2 emissions from the combustion of biomass) are reported, but separately from the scopes in a memo item. The requirement to report biogenic emissions separately only refers to CO_2 emissions from the combustion of biomass and not to the emissions of any other GHGs which are also emitted during combustion (CH_4 and N_2O - these are reported within Scope 1).*

The treatment of biomethane in the GHG Protocol is described in the 2015 GHG Protocol Scope 2 Guidance. Although this guidance primarily focusses on GHG emissions from purchased electricity, a parallel is made with the reporting of Scope 1 emissions from consumed natural gas, including biomethane. If a company purchases biogas or biomethane through a contractual instrument, then the

*company shall ensure that the instrument meets the **Scope 2 Quality Criteria.** If this is the case the company should report the emissions for biomethane using the so called **market-based method** using a specific (and often lower) emission factor. If the instrument does not meet the criteria the gas use should be reported as **Scope 1 natural gas** using a standard emission factor.*

GHG Protocol Scope 2 Quality Criteria

Table 1. GHG Protocol Scope 2 Quality Criteria for electricity and how these could be applied for biomethane.

Requirements contractual instruments for electricity	Reflections regarding the applicability for contractual instruments for biomethane
All contractual instruments used in the market-based method for scope 2 accounting shall:	*Based on these requirements a Green Gas Certification Scheme should ensure:*
Convey the direct GHG emission rate attribute (claim) associated with the unit of electricity produced.	*That instruments convey the GHG emission rate attribute specific to the biogenic fuel origin.* **Action for GGCS:** *Preferable the certificate also specifies the attributed emission rate.*
Be the only instruments that carry the GHG emission rate attribute claim associated with that quantity of electricity generation.	*That companies can make unique claims and no double counting can therefore occur for the attributes of the same amount of biomethane being sold (to other companies or persons.*
Be tracked and redeemed, retired, or cancelled by or on behalf of the reporting entity.	**Action for GGCS:** *None, as the GGCS already meets these requirements.*
Be issued and redeemed as close as possible to the period of energy consumption to which the instrument is applied.	*That the certificate also includes the "vintage" or the date of biomethane generation from which the contractual instrument is derived. The GHG Protocol is not explicit about the definition of "close". The do mention: "This timing should be consistent with existing standards for the market where the contractual instruments exist".* *In our opinion it is acceptable if the biomethane is produced during the current, or previous reporting year. We note, however, that RGGOs in the GGCS have a validity of up to 3 years and 3 months. Furthermore, according to the RED REGOs shall take place within 12 months of production of the corresponding energy unit.* **Action for GGCS:** *Consider reducing the maximum validity of certificates to 12 months to be in-line with above requirements.*
Be sourced from the same market in which the reporting entity's electricity-consuming operations are located and to which the instrument is applied.	*That the certificate includes information on the location of origin of the biomethane. The GHG protocol is again not very specific about the definition of the "market" but refers to boundaries established by regulatory authorities*

	and/or certification/issuing bodies. In addition, it mentions that contractual instruments should be sourced from regions reasonably linked to the reporting entity's consumption. In our view biomethane from projects in the UK can be sold at least across to users across the UK and possibly across the EU, but not internationally. ***Action for GGCS:*** *None. GGCS certificates already include the country of origin.*
In addition, utility-specific emission factors shall:	
Be calculated based on delivered electricity, incorporating certificates sourced and retired on behalf of its customers. Electricity from renewable facilities for which the attributes have been sold off (via contracts or certificates) shall be characterized as having the GHG attributes of the residual mix in the utility or supplier-specific emission factor.	*In our view these requirements are not relevant for biomethane.* ***Action for GGCS:*** *None.*
In addition, companies purchasing electricity directly from generators or consuming on-site generation shall:	
Ensure all contractual instruments conveying emissions claims be transferred to the reporting entity only. No other instruments that convey this claim to another end user shall be issued for the contracted electricity. The electricity from the facility shall not carry the GHG emission rate claim for use by a utility, for example, for the purpose of delivery and use claims.	*In our view these requirements are not relevant for biomethane.* ***Action for GGCS:*** *None.*
Finally, to use any contractual instrument in the market-based method requires that:	
An adjusted, residual mix characterizing the GHG intensity of unclaimed or publicly shared electricity shall be made available for consumer scope 2 calculations, or its absence shall be disclosed by the reporting entity.	*In our view these requirements are currently not relevant for biomethane as the percentage of biomethane in the gas grid is negligible. Should the percentage increase to the extent that this has an impact on gas grid emission factor then this should be revisited.* ***Action for GGCS:*** *None.*