

March 2018

Emailed to: londonplan@london.gov.uk.

Subject line "Draft New London Plan"

Green Gas Certification Scheme (GGCS) Response to Draft London Plan (Greater London Authority (GLA) consultation, December 2017)

The Green Gas Certification Scheme (GGCS) welcomes the opportunity to respond to the Mayor's Draft London Plan. Our response is focused on the role that the newly emerging renewable gas to grid sector can play in supporting the Mayor's manifesto pledges on addressing climate change and increasing London's output of renewable energy generation. Specific to the London Plan, our response examines opportunities to how renewable gas – injected into the gas grid – can support the delivery of low and zero carbon buildings in London.

Introduction

The GGCS is an industry-led scheme¹ that tracks biomethane, or 'green gas', through the supply chain to provide certainty for those that buy it. Each unit of green gas injected into the grid displaces a unit of conventional gas. The GGCS tracks each unit of green gas from its point of injection into the distribution grid, to any trades, to its sale to a consumer, or group of consumers. The GGCS tracks the contractual rather than physical flows to ensure there is no double-counting from production to end use. A number of other European countries including the Netherlands, Denmark, Austria, Germany and Italy all have more mature biomethane to grid (BtG) sectors in operation, and the GGCS is the UK member of the European Renewable Gas Registry (ERGaR)², an initiative between the European registries of biomethane certificates.

Biomethane or 'green gas' is an upgraded form of biogas, which is produced through the process of anaerobic digestion (AD) and is 100% renewable. Feedstocks to the AD plant typically include food waste, other organic waste, sewage sludge, energy crops and agricultural residues. The chemical composition and energy content of biomethane is comparable to natural gas allowing it be injected into the gas grid and used in the same appliances as fossil gas including gas boilers, gas engines and as a vehicle fuel in gas buses and lorries.

¹ The GGCS is run by the Renewable Energy Association's subsidiary, Renewable Energy Assurance Ltd. GGCS participants oversee the way it is run, on a not-for-profit basis. Further information is available at www.greengas.org.uk

² <http://www.ergar.org/>

The GGCS was established in 2010, but the first commercial biomethane to grid schemes only started injecting green gas into the gas grid in 2012. There are now close to 100 schemes operational in the UK with a capacity of around 5 TWh/y, equivalent to the gas consumption of approximately 350,000 homes. Over the past two years the UK BtG sector has been recognised as the fastest growing in the world.

The Government's Renewable Heat Incentive (RHI) provides an incentive to develop BtG projects, providing a payment to each kWh of qualifying metered biomethane injected into the gas grid. The Clean Growth Strategy has signaled the Government's ongoing support for the sector stating that it will be "*reforming the RHI to focus the scheme towards long-term decarbonisation through greater uptake of technologies such as heat pumps and biomethane (biogas to grid)*".³

The production and injection of biomethane is tightly regulated by Ofgem, National Grid, and the local gas distribution network operator (GDNO), where the plant is based, to ensure that gas produced meets stringent sustainability and quality criteria. The sustainability criteria for UK biomethane⁴ sets out some of the most detailed requirements in the world, and biomethane produced in BtG schemes can only qualify for RHI support if it has achieved a minimum 60% greenhouse gas (GHG) saving over the European heat average.

The GGCS recently reported⁵ that its certificate sales recently achieved 1 TWh of green gas supply, and the GGCS now supports green gas tariffs across eight different energy suppliers. Increasing numbers of consumers are becoming aware that, just as they can choose to source renewable electricity, they can similarly opt for green gas supplies. High profile businesses such as Sainsbury's, Kingspan, Landsec and Unilever are all now using GGCS Green Gas Certificates to drive down their onsite greenhouse gas emissions

London has two biomethane to grid schemes in operation – Biocollectors⁶ in Mitcham, and ReFood Dagenham, in Dagenham Dock, the inauguration of which took place in 2017 at an event introduced by the Deputy Mayor for Environment⁷.

Further renewable gas solutions are now coming forward, including the production of bioSNG (bio substitute natural gas) from the gasification of waste. New industry analysis has set out that the green gas market has significant scope to develop in the UK, with a potential to produce 149TWh of energy by 2050 - enough to power over 10 million homes⁸.

³ Clean Growth Strategy, BEIS, 2017

⁴ <https://www.ofgem.gov.uk/publications-and-updates/non-domestic-rhi-main-guidance>

⁵ Green Gas Certificate demand smashes the 1TWh barrier, 10 November 2017

⁶ <http://www.biocollectors.com/>

⁷ ReFood opens latest state-of-the-art AD facility in London, Press Release, 11 July 2017

⁸ Review of Bioenergy Potential: Summary Report, Cadent Gas, September 2017

The Mayor's draft London Environment Strategy (LES) states that an increase in the production of local green gas, both within the capital and nationally, is required if London is to achieve the Mayor's 2050 zero carbon ambitions, and that *"London's zero carbon scenario is intrinsically linked to the decarbonisation of the UK's electricity and gas grids."*

The GGCS agrees with the LES statement that:

"Natural gas will continue to play a valuable role both in the short and medium term for heating and for electricity generation as we make the transition to a low carbon economy. While natural gas is a fossil fuel, there are some opportunities to decarbonise the gas grid such as significant uptake of biogas or conversion of the gas grid to use hydrogen. However a lack of clear government strategy on the future of gas has led to uncertainty on the wider approach to the long term decarbonisation of heat. For this reason, London must develop a flexible and more decentralised energy supply system."

The production and use of biomethane has significant potential to help contribute greenhouse gas emissions in the transport, heat and power sectors. In addition, a KPMG study⁹ has concluded that the *"evolution of the gas networks, injecting green gas such as hydrogen into the grid, offers significant cost savings against alternative low carbon heating sources. It is also shown to be the most practical scenario in terms of technical feasibility and, importantly, acceptance from customers and society. The value that customers place in the convenience and reliability of current heating solutions is shown to be an important consideration in future policy decisions."*

The use of the gas grid has been recognised as the most efficient way in which to convey renewable gas from site of production to point of consumption and having a robust certification system is key to ensuring this can happen.

A Decarbonising Electricity Grid and its impact on the London Plan

The GGCS supports London's planning policies on energy and climate change mitigation, which have led to some of the most carbon efficient buildings in the UK. The second stage of the London Plan's energy hierarchy – 'be clean' – has led to the growth in the installation of Combined Heat and Power (CHP) plant and the expansion in the use of heat networks in London. However the recent decarbonisation of the electricity grid due to the rapid growth in renewables, such as solar PV and offshore wind, is having a knock-on effect on the carbon saving potential of onsite generation. It is this issue of changes to electricity grid emission factors that has recently been examined by a cross-sector group of building energy professionals who concluded that: *"gas-fired Combined Heat and Power (CHP) [is] still being installed as it is theoretically shown to reduce carbon emissions of the development in the energy strategy. The reality is that natural gas*

⁹ 2050 Energy Scenarios The UK Gas Networks role in a 2050 whole energy system, KPMG/ENA, July 2016

CHP is no longer always a net carbon reducer – thus not the solution to realise a zero carbon development or building.”¹⁰

Though not specifically addressed in the Draft London Plan, the accompanying “*London Plan topic paper: Energy* (December 2017) states:

“16. In recent years, national Building Regulations (last published in 2013) have become increasingly outdated in relation to estimating the carbon emissions associated with buildings, in particular the carbon content of grid supplied electricity. The UK electricity grid has become significantly lower carbon in the four years since Building Regulations were last published,

“32. The decarbonisation of the grid, and the change in the relative carbon content of electricity and gas, will mean that other technologies, such as low carbon heat pumps, can increasingly serve as the heating source for district heating, offsetting more traditional systems such as gas engine CHP.

And Buro Happold’s report to the GLA, “*The future role of the London Plan in the delivery of area-wide district heating*”, which forms part of the evidence base for London Plan, considered an increasingly decarbonising electricity grid up to 2020, and concluded:

- *As the national electricity grid decarbonises, the carbon benefit of gas CHP diminishes as gas becomes more carbon intensive relative to grid electricity*
- *Using 2019 carbon emission factors, gas engine CHP is expected to provide lower carbon savings over its lifetime than gas boilers - Building Regulations calculations do not currently reflect this and require updating.*
- *Heat pump technologies show increasingly greater carbon savings with future grid emissions factors, but far less than gas engine CHP when using the carbon factors in current Building Regulations*
- *Updating Building Regulations to reflect 2019 emission factors would allow heat pump systems to meet the 35% target, however if they were only updated to 2016 levels this would create a halfway transition where neither gas CHP nor heat pumps would typically meet the 35% target.*

Biomethane to Grid and the London Plan

CHP greenhouse gas emissions can be significantly reduced through the use of renewable biomethane gas. When combusted, biomethane CO₂ emissions are near zero.

Consequently, a number of London projects using CHP and heat networks have looked at the potential of using biomethane as a fuel. One such development is the Elephant and Castle ‘Elephant Park’ Regeneration project, which has been given the go-ahead for a major Energy Hub using CHP with a strategy to utilise

¹⁰ *Getting to Zero*, London Energy Transformation Initiative (LETI) September 2017

biomethane to deliver “net zero-carbon heating and hot water” across the site.¹¹ The developer LendLease had previously confirmed that the ambition for this development is that “on-site gas usage will be sourced from biomethane and will be secured through the Green Gas Certification Scheme (GGCS)”¹² This has also been confirmed in meetings between the GGCS and the site energy service provider for this project, E.ON.

At the time of LendLease’s planning application for the development, the GLA’s planning report ¹³ concluded:

“215 The energy strategy provides a comprehensive analysis of renewable energy options for the proposed system. The preferred approach is to use biomethane fuel supplied over the gas network. This renewable fuel would be produced and injected into the national grid elsewhere and then purchased as a credit to supply some or all of the gas consumption requirements of the CHP plant and gas boilers in the energy centre. The proportion of total energy centre demand for natural gas displaced through the use of biomethane fuel can be matched to meet the Council’s 20% renewable energy target and thereafter to reduce regulated carbon dioxide emissions to zero.

216 This is an innovative approach to meeting renewable energy requirements and to achieving zero carbon development that is supported in principle. The use of biomethane credits does however require caution as the Government is yet to officially recognise this as an allowable solution. It is however being considered and is already recognised by the Government as a renewable fuel and is accredited under the Green Gas Certification Scheme. Moreover the biomethane supply chain in the UK is developing and this includes proposals for production in Greater London.”

As grid carbon emission factors fall and have a knock on effect on the CO₂ effectiveness of fossil gas-fired CHP, there is growing interest from developers to harness renewable gas as their primary fuel. **Delivering compressed biomethane gas in tankers over road networks to energy centres in the city is not a viable – or even sensible - option and hence there has been increased interest in following the route adopted by the Elephant Park¹⁴ project, sourcing biomethane tracked through the GGCS’s Green Gas Certificates, ensuring that each unit of gas used by a London based CHP plant is matched by a unit of renewable biomethane gas injected into the gas grid.**

¹¹ The Energy Hub is part of a wider energy and low-carbon strategy being adopted by Lendlease at Elephant & Castle. Its forward-thinking approach has resulted in the regeneration project becoming one of only 17 projects globally to be accepted into the C40 Cities Climate Positive Development Programme. *Lendlease get go ahead for Elephant energy hub*, Southwark Press Release, 8 October 2015

¹² The Heygate Masterplan Elephant and Castle Outline Planning Application Energy Strategy, Prepared for LendLease by E.ON March 2012

¹³ Heygate Estate, Elephant and Castle, Mayor’s Planning Report PDU/2149/02 27 February 2013

¹⁴ See <https://www.lendlease.com/uk/better-places/creating-innovative-power-solutions/>

In Policy SI2, the Draft London Plan sets out a new policy option for developers:

“Where it is clearly demonstrated that the zero-carbon target cannot be fully achieved on-site, any shortfall should be provided:

- 1) through a cash in lieu contribution to the relevant borough’s carbon offset fund, and/or*
- 2) off-site provided that an alternative proposal is identified and delivery is certain.”*

The GGCS supports the London Plan’s policy proposal to allow developers to explore off-site measures, as long as robust procedures are in place to ensure that compliance is being met, with renewable energy being generated and CO₂ savings delivered meet the planning requirement associated with the development.

The GGCS recommends:

- Off-site measures should be explored as part of the London Plan energy hierarchy – especially where new development could support bringing forward new/additional renewable energy supplies**
- The Mayor should examine the potential of biomethane to grid schemes matched with Green Gas Certificates, as a route to support the decarbonisation of CHP and district heating schemes.**
- Off-site measures proposed must have robust procedures in place to ensure that compliance is being met, renewable energy being generated and CO₂ savings delivered, meeting the planning requirements associated with the development.**
- The Mayor should build in policies for all Opportunity Area Planning Frameworks (OAPFs) and energy master plans to look at the potential of renewable gas production and distribution.**
- The GLA’s SPG on Sustainable Design and Construction (SDC) needs to be updated to provide guidance on allowable off-site measures.**
- A clear narrative for decarbonising heat networks has not been set out in the London Plan. There are clear opportunities for using heat pumps but, as the London Environment Strategy sets out, London is likely to continue to use gas supplies for decades to come. Biomethane to grid could provide a viable route for decarbonising heat supplies in the city – especially when linked to the most efficient combustion technologies – such as CHP.**