



The Gas Meter Tax

How the Westminster government proposes to pay for green gas

Technical Director
ANDREW NEWMAN CEng MIET MIGEM



Executive Summary

The Department for Business, Energy and Industrial Strategy (BEIS) is consulting over a proposed new “Green Gas levy”, which is effectively a gas meter tax, that will levy gas suppliers with the expectation that the costs will be passed on to customers.

A levy on suppliers that will be passed onto consumers is not in the interests of the 24 million households who use gas for their domestic heating. This is particularly concerning in the early phase where a flat charge per connected gas meter is proposed, so that a one bedroom flat will be charged the same rate as a ceramics factory.

It is regressive to pass the costs onto domestic consumers, potentially laying the burden of paying for the decarbonisation of heat onto households that can ill afford increases in their energy bills.

The Gas Meter Tax is being levied to subsidise biomethane (chemically the same as natural gas, but produced from renewable sources) being injected into the gas grid.

The danger of the so-called Green Gas Levy, is that it establishes a principal of the consumer paying a gas meter tax for a relatively minor contributing strand towards decarbonisation, and that this regressive mechanism, once established without consumers even noticing, will then be employed to fund the much larger infrastructure projects required for blue and green hydrogen.

Background

The Department for Business, Energy and Industrial Strategy (BEIS) is consulting over a proposed new “Green Gas levy”, which is effectively a gas meter tax, that will levy gas suppliers with the expectation that the costs will be passed on to customers. [1] The Gas Meter Tax is being levied to subsidise biomethane (chemically the same as natural gas, but produced from renewable sources) being injected into the gas grid.

A levy on suppliers that will be passed onto consumers is not in the interests of the 24 million households who use gas for their domestic heating. This is particularly concerning in the early phase where a flat charge per connected gas meter is proposed, so that a one bedroom flat will be charged the same rate as a ceramics factory.

It is regressive to pass the costs onto domestic consumers, potentially laying the burden of paying for the decarbonisation of heat onto households that can ill afford increases in their energy bills.

There are also grounds for concern on technical grounds over BEIS’s strategy. Biomethane can be manufactured by two different processes.

- Anaerobic Digestion (AD), which is the decomposition of the fuel without the presence of oxygen to produce a mixture of gases, which is then purified to create biomethane.
- Gasification, which is the heating to high temperature of the fuel without combustion, similar to burning toast, which produced a mixture of gases, including hydrogen, which is then converted to biomethane as Synthetic Natural Gas (also known as bioSNG).

BEIS is intending to only support biomethane produced by anaerobic digestion (AD), while not supporting biomethane produced by the higher volume method of gasification/methanation. This is a flawed approach. Cadent believe that a future shift to BioSNG has the potential to deliver 10 times the quantity of gas that can be generated from AD, as AD deployment is limited by the capacity for rural gas grid penetration. [2]

Although, the anticipated increases to domestic bills to pay for biomethane at this stage may be modest, it establishes a precedent that could pass on considerable higher costs to consumers in any future transition to hydrogen, or to biomethane produced by gasification/methanation. Already we see this in the operation of subsidies to fund renewable electricity sources, which are paid for by a levy on household energy bills. The OBR calculate by 2022 the green levy to pay for renewables will cost £10 per week per household on household energy bills regardless of income and ability to pay. [3]

Technical Issues with Anaerobic Digestion

The UK Grids are not designed for smaller distributed sources like biomethane from AD, and lack of capacity has been a pinch point inhibiting expansion of the biomethane market, as new plants must

¹ BEIS, “*Consultation on a Green Gas Levy*”, 2020, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/919901/consultation-green-gas-levy.pdf

² “*The Future of Gas, Supply of Renewable Gas*”, Cadent, p6, <https://cadentgas.com/nggdwsdev/media/Downloads/Future%20of%20gas/The-future-of-gas-Feb-16.pdf>, 2016.

³ Office for Budget Responsibility (OBR), *Economic and Fiscal Outlook*, p 104, Environmental Levies, March 2017

find sites where there is enough capacity in inject their gas which is particular problem on those parts of grid which have very low demand in the summer. [4]

Lack of grid capacity has led to approximately 30% of potentially viable biomethane projects in the UK either not proceeding at all, or the gas has gone instead to electricity generation through Combined Heat and Power (CHP), rather than being fed into the grid. [5]

In the UK, some projects have failed, due to lack of capacity in the grid to receive the gas, for example, Grindley Farm, has been closed since 2018, having operated for only 1500 hours since opening in 2016. [6] In addition, Anaerobic Digesters and upgrade plants are designed to operate with a fixed capacity, so lack of capacity in the grid during summer months can cause the gas to be flared. This is common in the UK. [7]

Dr Koonaphapdeelert's team at the University of Chiang Mai have performed a detailed international comparison of the economics of biomethane production from AD, taking into account both capex and opex costs over the lifetime of a project. This shows that in South Asia biomethane can be produced without subsidy at costs lower than current wholesale natural gas prices. However, in Europe the returns on capital may not justify risk, and the higher regional cost of bioenergy crops as a feedstock are a major source of cost variation. [8] The wide disparity in the cost of feedstocks is of crucial importance. Gas producers observe that while waste operators will pay a gate fee (currently around £30/MWh revenue) to facilities for processing domestic waste, conventional crops such as oil seed rape or maize have a significant cost (currently around £30/MWh cost). [9]

The UK has failed to develop a strategic plan for feedstock supply chains. Cadent has pointed out that the UK lacks a joined-up government approach to waste and energy. [10] At present there is no clear policy on how land should be used, with competing demands between energy crops, food, leisure and wildlife [11] There is understandable scepticism in many quarters towards using land for biomass rather than food production, and it is welcome that BEIS is encouraging biomethane via AD to be produced from waste instead.

However there are very good reasons why AD projects in the UK have mainly used agriculturally sourced biomass (typically maize) as the fuel-stock, [12] as this has the advantage of greater geographic flexibility, because a potential producer could find a spot on grid with capacity, where they could get planning permission, and then find local farmers to produce feedstock. The

⁴ REGATRACE pp 56, Renewable Gas Trade Centre in Europe, <https://www.regatrace.eu/wp-content/uploads/2020/04/REGATRACE-D6.1.pdf> 2020.

⁵ Baldwin J., "Biomethane and its role in decarbonising the gas network: Webinar with focus on within grid compression", IGEM, June 2020. <https://vimeo.com/425144617/26769882dd>, retrieved June 2020.

⁶ Lambert Smith Hampton, agent for machinery and Business Assets. <https://www.lsh.co.uk/mba/private-treaty/grindley-biogas-ltd> , retrieved June 2020.

⁷ Baldwin J., IGEM, June 2020, op cit.

⁸ Koonaphapdeelert, pp 64-70, Koonaphapdeelert S. et al. p xiii, Springer, 2020.

⁹ "Bioenergy Review 2018, Call for evidence, Response from Advanced Plasma Power Ltd", Committee for Climate Change, <https://www.theccc.org.uk/wp-content/uploads/2018/12/Biomass-response-to-Call-for-Evidence-Advanced-Plasma-Power.pdf>, 2018.

¹⁰ "The Future of Gas, Supply of Renewable Gas", Cadent, p3, op cit.

¹¹ "Bioenergy Review 2018, Call for evidence, Response from Advanced Plasma Power Ltd", Committee for Climate Change, <https://www.theccc.org.uk/wp-content/uploads/2018/12/Biomass-response-to-Call-for-Evidence-Advanced-Plasma-Power.pdf>, 2018.

¹² "Crops Grown for Bioenergy in the UK", https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/775243/nonfood-statsnotice2017-31jan19i.pdf, Defra, 2017

availability of feedstock is more geographically constrained when relying on waste, which means there may not be capacity in the grid local to where feedstock supply is. Furthermore, Biogas plants sometimes receive objections from local residents due to problems with odour, or the increased freight traffic on rural roads delivering feedstock. Use of waste as feedstock would likely increase such traffic for rurally located AD plants. [13]

Conclusion

While a transition to green gas (hydrogen and/or biomethane) is in the best interests of consumers as the best option to implement the decarbonisation of domestic heat, there are technical issues with biomethane from AD that limit this technique to being of secondary importance. The future heavy lifting will be from developing the production of hydrogen at scale, by electrolysis and steam reformation; and also from the production of either bioSNG or hydrogen from gasification of municipally sourced waste.

The danger of the so-called Green Gas Levy, is that it establishes a principal of the consumer paying a gas meter tax for this relatively minor contributing strand towards decarbonisation, and that this regressive mechanism, once established without consumers even noticing, will then be employed to fund the much larger infrastructure projects required for blue and green hydrogen, and for gasification.

Further background. See [Biomethane, A Critical evaluation of the current status of biomass and biomethane sectors.](#)

¹³ For example: "Villagers from Clipston, Arthingworth, Harrington and Great Oxendon had voiced disapproval about the plans at the 5.33ha (13.17 acres) site. They complained about the size of the AD plant, the risk of odour and thin access roads to and from the plant and the effect on local villages of as many as 80 HGV movements a day", "*£8m farm biogas plant powering 2,500 homes approved*", Farmers Weekly, July 2016, <https://www.fwi.co.uk/news/8m-farm-biogas-plant-powering-2500-homes-approved>