No Silver Bullet – but a Carbon Neutral Circular Economy can be delivered if we level up the investment playing field

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With the large oil and gas companies coming to terms with the scale and pace of the energy transition taking place, it was striking to read comments made by Bernard Looney, CEO, BP, in *The Sunday Times, August 9th 2020,* noting that the oil and gas exploration industry was becoming '*increasingly…socially challenged'.* The 415 million tonnes of carbon dioxide (CO_2e)emitted globally by BP last year, including emissions caused by its customers burning its fuels, was more than the UK's entire emissions in 2019.

BP has promised to become a net zero carbon emitter by 2050, which will transform it into a '*very different kind of energy company'*. Looney proposed a tenfold increase of BP's investment into green power over the next ten years – from $500m to $5bn a year to deliver 50 gigawatts of renewable capacity by 2030.

He added that BP would expand its ownership of electric vehicles (EVs) from 7,500 to 70,000, and reduce investment into oil and gas production by 40% to 1.5 million barrels a day, excluding the output from the Russian company, Rosneft, in which BP has a 19.75% stake.

By predicting a blended return of 12-14% from renewables, with wind, solar and biomass producing 8-10%, BP's Pension Fund and Sovereign Wealth Fund shareholders were naturally concerned about the validity of these numbers given their dependency on stable dividend payouts and, in particular, following the recent announcement that the latest BP dividend was to be cut in half.

Whilst Looney mentioned 'biomass' he did not mention 'biogas' – the differences are explained here. Biogas was front and centre of a statement by Harrison Clay, BP's Vice President Strategic Development, Global Environmental Products in July. Speaking at a webinar hosted by Thomson Reuters he forecast that US biogas production would increase tenfold by 2030.

Clay predicts a very large volume of biogas being used in non-road vehicle markets – for maritime, rail, utilities, high-heat applications and heavy industry. He noted that BP had already made big commitments towards decarbonisation in light of their 2050 net zero target. However, with the collapse of the oil price to $43 a barrel for Brent Crude on 15th July, directly affected by the pandemic and leading to consumption sitting at just a tenth of pre-crisis levels, they were having to rethink their transition timetable as their core product, oil and gas, could no longer be reliably sold for a profit.

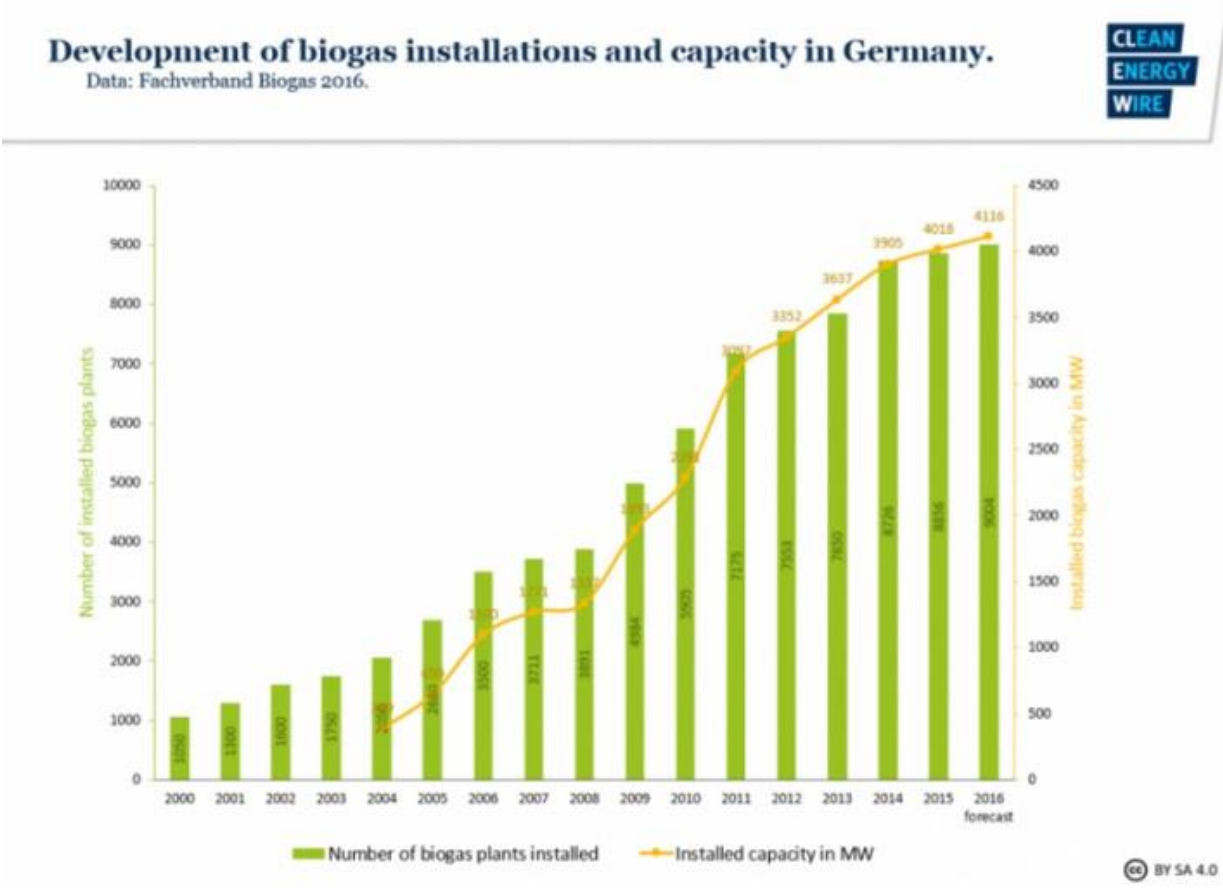
He acknowledged that while there had been a 5.5% fall in CO_2 emissions as a result of the pandemic, this was less than the 7.7% needed to meet the Paris Agreement. With this downturn not '*getting us to where we need to be'*, as Clay put it, he highlighted that it would be an '*environmental tragedy to burn all the hydrocarbons available*'. Peak oil in both demand and supply would, he stated, occur in the next two decades and this situation '*should be a positive for renewable energy and biogas', creating an 'imperative for action'*.

Harrison Clay's words coincide with a call by a consortium of UK trade bodies who wrote to the UK government earlier in June asking that renewables, including biogas, be put at heart of a green recovery**.**

Their letter was sent jointly by the Anaerobic Digestion and Bioresources Association (ADBA), the Association for Decentralised Energy (ADE), the Renewable Energy Association (REA), Scottish Renewables and the UK Sustainable Investment and Finance Association (UKSIF). They highlighted the opportunities in seriously scaling up the renewables industry to develop a 'carbon neutral circular economy' tilted towards meeting net zero targets, providing a sustainable return on investment and millions of jobs and, crucially, energy security for the UK, an additional impetus to the PM's '*Build Back Better'* campaign.

With the UK government hosting the UN Conference of Parties on Climate Change (COP26) in Glasgow in November 2021, the US stepping out of the Paris Agreement and China reneging on previous green pledges, these trade associations all want to see a step change in the UK's delivery of a lasting sustainable and green response to COVID-19.

Across Europe, other countries have been taking full advantage of the sustainable options providing energy security offered by harnessing biogas. Sweden relies almost completely on this renewable gas option and since 2000 power production from biomass has grown tenfold in Germany.

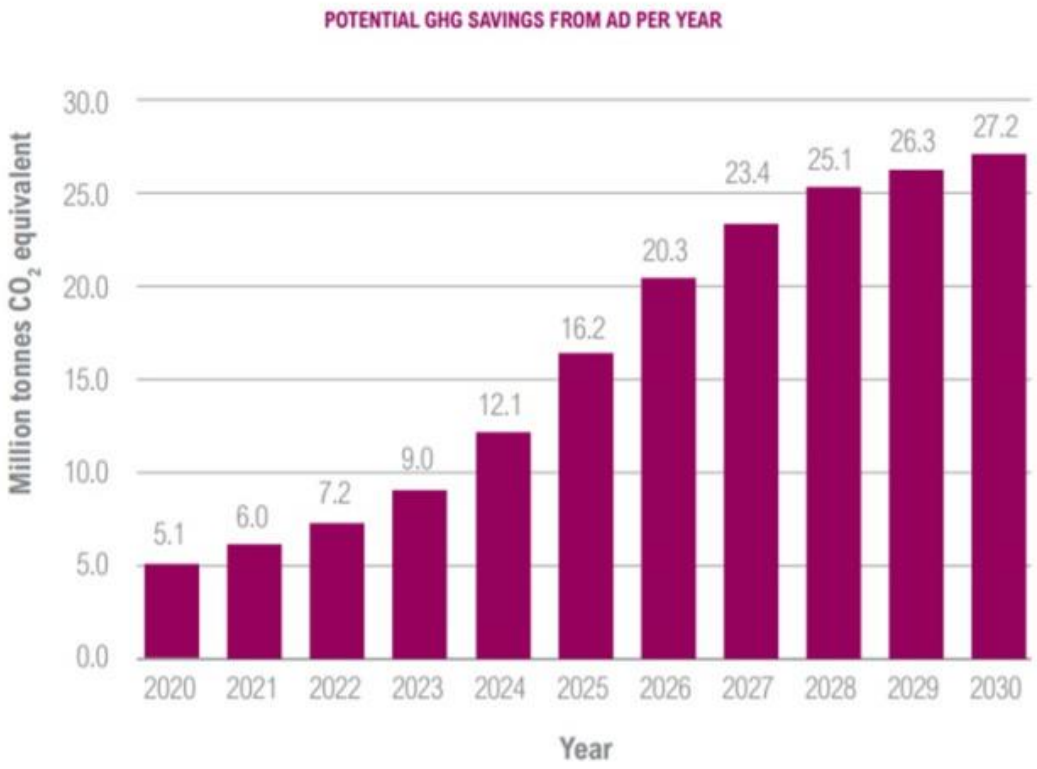


Source: *Clean Energy Wire* *https://www.cleanenergywire.org/factsheets/bioenergy-germany-facts-and-figures-development-support-and-investment*

When I spoke on 13th August with Charlotte Morton, Chief Executive of ADBA, she drew attention to a report by the World Biogas Association (WBA) highlighting that the world is currently delivering just 2% of its potential to reduce global greenhouse gas (GHG) emissions, where all available organic wastes are collected and treated through anaerobic digestion (AD). WBA has established that unlocking the potential of the biogas industry could help reduce global emissions by 12%. This can be

achieved by capturing and recycling the remaining 98% of organic wastes which at present were 'sitting around producing methane' (a gas 34 times more harmful than CO2). This target was, she noted, 'perfectly achievable' by 2030 with appropriate government recognition and support.

"There are over 670 AD plants across the UK (2020), compared to over 9,000 currently installed in Germany. In practice, the supply of organic feedstocks governs the scale of AD plant constructed and therefore the total number of plants required to treat the organic wastes produced. Generally speaking, smaller plants are well suited to on-farm agricultural wastes while larger plants enable the centralised treatment of municipal food waste. Nevertheless, based on the average plant capacity, we estimate the UK needs between 3-4,000 AD plants to deliver the full potential for the UK, treating all available organic wastes. The AD sector is currently reducing emissions in UK by 1%, yet holds the potential to deliver at least 6% – saving 27m tonnes of CO2 emissions annually – heating to homes, fueling heavy vehicles, and producing farms with renewable biofertiliser. For example, biogas can help power railcars as your UK first of a kind demonstration in July showed."



Source: *Biomethane: the pathway to 2030, The no regrets option for the hardest to decarbonise sectors, Anaerobic Digestion and Bioresources Association (ADBA); https://adbioresources.org/docs/Biomethane_-_Pathway_to_2030_-_Full_report.pdf*

"Innovation is consistently improving AD's efficiency and ability to decarbonise UK sectors. The hub-and-spoke operational model represents one such example; here, a series of AD plants export their biomethane to a centralised site to inject this green gas to the national grid. This system negates the need for every plant to develop costly and extensive infrastructure, making best use of existing local services. In addition, the industry can compress grid-quality biomethane, tanker it to storage or refuelling stations and use as a low-carbon transport fuel. At present, the AD industry still relies on Government's support. While a key incentive for the sector – the Renewable Heat Incentive (RHI) is due to close in March 2022, the Green Gas Support Scheme (GGSS) is expected to open only in Autumn 2022. Specifically targeting the AD sector, this newly-introduced fund aims to contribute to

the government's ambition of tripling biomethane in the gas grid by 2030. Yet, the government continues subsiding the fossil fuel industry, thus limiting investor interest in these crucial green technologies."

Charlotte explains that to reach the AD industry's full potential, we will need to collect as much organic waste feedstock as feasibly possible – from food waste, animal manures and slurries, crop residues, sewage – to generate biomethane. Based on existing technological efficiencies and given rising populations, the UK could generate 5.7 billion m3 per year of biomethane by 2030, or enough to heat over 4.5 million homes. Assuming a reasonable 25% improvement in plant efficiency, these figures could rise to 7.1 billion m3 per year, enough to heat 5.5 million homes.

Charlotte Morton highlights that by 2030 – with a supportive policy environment – biomethane could deliver a 6% reduction in total UK emissions in the hardest to decarbonise sectors, while delivering 30,000 direct jobs across the country. This would equal to 6.4 million homes heated with 8 billion m^3 of biomethane. However, a £20 billion investment is required and one of the biggest obstacles remains the enormous number of financial subsidies still benefiting fossil fuel industry producers. "Removing these would provide an enormous stimulus to the energy transition, and with it to the AD sector", she stated.

"Most environmental benefits of biomethane are not recognised nor paid for. For example, there is no payment for its waste management services nor for it to produce green fertilisers, whereas the North Sea continues to get significant tax breaks and other forms of financial support."

In their report, *'Phase-out 2020 Monitoring Europe's fossil fuel subsidies',* the Overseas Development Institute noted that between 2014 and 2016, 997 fossil fuel subsidies, were provided through fiscal support, public finance, and investment by state-owned enterprises (SOEs) across the European Union. These amounted to €112 billion worth of support provided by 11 countries, with the EU itself providing €4 billion of these directly between 2014-2016 and further fossil fuel investments also incentivised.

The transport sector was the biggest beneficiary with governments providing at least €49 billion per year in direct spending, tax breaks, and income and price support, amounting to almost half (44%) of the support for fossil fuels identified in this study.

Much of this was offered as subsidies for diesel consumption, amounting to €21 billion (43%). The ODI report demonstrated that after the transport sector, industry and business received the next highest level of subsidies. These were estimated at nearly €15 billion per year, all derived through fiscal support, including tax breaks for energy-intensive industries. The EU and European governments were also providing almost €7.3 billion per year in public finance to oil and gas production in Europe and overseas. This was in addition to €3.3 billion of fiscal support (such as tax breaks) and state-owned enterprise investments amounting to €2.7 billion. The UK along with Germany and Italy were providing the highest levels of public finance to support oil and gas production.

The EU budget's research and innovation programme, Horizon2020, had allocated €12 million per year for shale gas-related exploration activities; and France and the UK had both provided €253 million per year in public finance towards fossil fuel exploration.

Charlotte Morton continued*: "These tax breaks need to be removed. Most people are not aware of this. The UK needs to level up the playing field. There is no silver bullet for renewables but if you add*

them all up then we can provide to meet our nation's needs. Surely now is the time to focus on making this happen."