Too Much 'Good COP, Bad COP', And Why Alternative Thinking's Urgently Required

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With the energy crisis raging around us, there's an opportunity to reassess the UK's energy and decarbonisation strategies. The 'time for action' for energy-intensive industries, said Steve Elliott, CEO, of the Chemicals Industry Association, "is within days, not weeks".

Such foundation industries have been calling for support for many years over energy prices which leave them at a competitive disadvantage compared to international producers. Commodities consultancy, CRU, was reported this week as highlighting British steelmakers using electric arc furnaces not being able to cover costs in September.

As a CRU analyst quoted in the Times stressed, "At $2,600MWh, the cost of rebar production is over double the current spot price. Producers have no option but to switch off' (2021). German industry does not pay levies for renewables or energy efficiencies as these are paid by residents and small businesses which means costs favour large energy-intensive users and leading. Obviously, this makes energy more expensive for domestic consumers.

IEA data to 2019 showed that average UK industrial prices, including taxes, have been third highest amongst the IEA's 28 members, with only Italy and Japan having higher industrial energy prices (Gosden, 2021). In fact, energy prices escalated to double what European competitors were paying in September, with the UK ranked as the second most expensive country for electricity in Europe by UK Power in 2020.

Whilst producers had previously enjoyed some of the lowest gas prices in Europe, during Autumn 2021 these had risen by over 250% compared with January 2021 (McCabe, 2021) with British Steel's peak charges rising to £2,500 per MWh, compared to £50 in April (The Week, 2021).

With global energy supply chain challenges, the IEA stated in their latest 'World Energy Outlook', that there is more oil and coal in use than at any time before. This organisation is proposing a vital surge of $4tr investment in renewable energy if we're to keep global warming within 1.5 degrees centigrade. As IEA Executive Director Fatih Birol explains (IEA, 2021):

"The world's hugely encouraging clean energy momentum is running up against the stubborn incumbency of fossil fuels in our energy systems…Governments need to resolve this at COP26 by giving a clear and unmistakeable signal that they are committed to rapidly scaling up the clean and resilient technologies of the future. The social and economic benefits of accelerating clean energy transitions are huge, and the costs of inaction are immense."

Much is made of the decarbonisation of the UK's electricity grid, with over 65% carbon emissions reductions over the last decade (Gordon, 2020). Nonetheless, during the past year just 23% of electricity has been produced from renewables, 17% from nuclear, 7% from biomass, leaving an ongoing 40% dependency on fossil fuels (Morley, 2021), highlighting the scale of the challenge for all UK electricity to come from clean sources by 2035 as recently promised by the government (BBC, 2021).

And although electricity is seen as a key part in decarbonising transport, even if all electricity were from renewable sources, as the #WM2041 discussion document pointed out, if all cars on the road become electric vehicles, we'd still need more than double the electricity currently consumed today simply to power them (West Midlands Combined Authority, 2020).

In August 2021, the UK government launched its hydrogen strategy envisaging between 20%-35% of UK energy consumption could be hydrogen-based by 2050 (Department for Business, Energy & Industrial Strategy, 2021). However, as 98% of hydrogen manufactured during 2021 was 'brown', and produced 830Mt of greenhouse gas emissions (Ochu et al, 2021), compared to aviation producing around 1Bnte annually and given that it may take the next ten to fifteen years to produce green hydrogen at commercially viable prices, other more immediately accessible energy options are required.

The UN recently highlighted cutting methane gas emissions as being the single strongest lever available in reducing GHG emissions, especially as they'd increased faster than at any time since records began, with methane 85 times more harmful than carbon dioxide as a GHG (United Nations, 2021). Or, as the World Biogas Association has pointed out, one tonne of methane released over the next decade is equivalent to releasing 85 tonnes of CO2.

Methane, also known as Compressed Natural Gas (CNG) was highlighted by Fatih Birol, of the IEA, writing in the Financial Times on 12th October, as 'inexplicably' being allowed to leak into the atmosphere in huge quantities each year. In fact, two and a half times the amount of natural gas consumed by the UK each year was 'being allowed to escape into the atmosphere 'from fossil fuel operations worldwide'.

Close to 120mT of 'fugitive methane' escaped into the atmosphere in 2020, with one third of these coming from human activity. However whilst Fatih Birol's article was clear about the need to contain fossil fuel methane emissions, it did not mention the benefits of creating and harnessing biomethane, or BioCNG, an identical gas to Compressed Natural Gas, although made from renewable sources, to and capturing emissions from organic waste matter produced through the process of anaerobic digestion.

With human activity generating 105bn tonnes of organic waste annually and with only 2% currently being treated, there's a real opportunity to prevent 'fugitive' methane emissions through anaerobic digestion (AD) resulting in the production of biomethane gas for heat, power, biofertilisers and bio-CO2 for agriculture (Primmer, 2021).

A report, supported by Cadent, Gas Networks Ireland, National Grid, Northern Gas Networks, SGN, Wales and West gas networks, prioritised biomethane use (also known as BioCNG) in transitioning to green hydrogen. They promoted a ramp-up of BioCNG use from 2TWH2 produced in 2021 to a 120TWh2 opportunity for UK production from identified feedstocks enabling BioCNG injection to grid and for use by gas trucks.

Through the rapid deployment of BioCNG gas trucks over coming decade, annual CO2 emissions from HGVs could fall by between 22%-38% below present levels, compared to waiting for other zero-emission models without deploying gas trucks, which would result in just 6% emissions reductions by 2030 compared to 2020 (Cadent Gas, 2021).

With over 20m gas trucks operating worldwide (Carlier, 2021), this technology is capable of meeting operators' requirements, especially for highest mileage applications. A UK-wide network of refuelling sites is being deployed with 80% of all gas trucks purchased in 2019 using BioCNG and with

ADBA the Anaerobic Digestion and Bioresources Association recently highlighting that at its full potential AD could deliver 25% of the UK's domestic gas demand and more than 100% of the UK's CO2 demand (ADBA, 2021).

Maintaining fuel duty differentials between diesel and BioCNG was seen as essential in ensuring a competitive business case for gas truck investment and operation argued Cadent Gas in their report on 'The Future role of Gas in Transport' (Cadent Gas, 2021).

However, we have some way to go on this with the Overseas Development Institute (ODI) noting that between 2014 and 2016, 997 fossil fuel subsidies were provided through fiscal support, public finance, and investment by state-owned enterprises across the European Union (Climate Action Network Europe, 2017) amounting to €112 billion of support from 11 countries, with the EU itself providing €4 billion directly between 2014-2016.

The transport sector was the biggest beneficiary with governments providing at least €49 billion each year in direct spending, tax breaks, and income and price support, almost half (44%) of the support for fossil fuels identified in this study. As Charlotte Morton, CEO, ADBA, stated recently:

"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" (Nielsen, 2020).

The recent crisis has highlighted that we need to act now to tackle these emergencies. We can no longer afford to wait for hydrogen alone, which may well provide a large part of the solution in a decade or more, but is unavailable today. We should be harnessing practical, readily available alternatives such as biomethane, along with other renewables, today.

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