If Europe is to meet its ‘carbon neutral’ target by 2050, it must reduce its fossil fuel consumption. This is a given. But is switching from one form of fossil fuel (oil or coal) to another – gas – really the best way to do this? Based on data from the US-based organisation Global Energy Monitor (GEM,) Investigate Europe can demonstrate that the industry is either currently building or planning investments of at least €104bn in gas infrastructure.
With much fanfare, governments across Europe are announcing ambitious targets to achieve climate neutrality. President of the European Commission, Ursula von der Leyen, has promised to put the climate at the heart of her presidency, calling the Green Deal “Europe’s man on the moon moment.” But at the same time, from Brunsbüttel in Germany to Athens in Greece, energy companies are constructing or planning liquefied gas terminals (LNG) and laying pipelines from the Baltic to the Aegean.
While some of this can be converted to carry the renewables of the future – gas pipes to carry hydrogen, for example – much of it cannot be repurposed, and such investments run the risk of becoming lock-ins or ending up as stranded assets; becoming obsolete before realising their return on investment.
Economists and climate researchers warn that these investments are nothing but a gas trap. “[Gas] is no longer part of the solution but has become part of the problem,” say experts at the German Institute for Economic Research (DIW). Claudia Kemfert, head of DIW’s energy department, warns that, “Any investment in fossil infrastructure, including natural gas pipelines and liquefied natural gas terminals, will be a lost investment.”
The central planning instrument for Europe’s energy policy is the Projects of Common Interest, or PCI list. A place on the list entitles investors to receive funding and loans from the European Investment Bank, EU institutions and private investors.
The current PCI list – the fourth – includes 32 gas projects, which not only run contrary to climate commitments, but may not even be needed. In January this year, French consulting firm Artelys produced a study for the European Climate Foundation. According to director Christopher Andrey, the report found that “the EU risks over-investment of €29bn in unnecessary projects”.
Nevertheless, EU parliamentarians gave this list their approval. But they were only able to vote on the list as a whole, not on individual projects. Any objections to gas projects and delay on the vote would also put the brakes on projects that involve wind and solar power.
But there were objections. Renew Europe, a group of EU parliamentarians, called on Frans Timmermans, the responsible Vice-President of the EU Commission, and Commissioner Kadri Simson to “ensure that only climate-proof projects on the PCI list will receive Union funding”. They also called for “an in-depth analysis of the gas projects on the PCI list in

order to finance only those that are truly genuinely necessary and compatible with the new climate and environmental commitments stemming from the Green Deal”.
However, the Climate Commissioner said that a change was only envisaged for the next programme list. As a result, 32 (55 according to some NGOs) of the 149 projects which were finally adopted serve to expand the use of natural gas.
In a press release, Executive Vice-President for the European Green Deal Frans Timmermans said: “We are turning words into action today, to show our European citizens that we are serious about reaching net-zero greenhouse gas emissions by 2050”.
So, the question, in light of this statement, is how did so many gas projects, which might not even be needed, come to be on the list in the first place?
To answer that is to try and unravel a dense network of industry influence at all political levels. From the EU parliament and Commission to national governments, questions are raised about energy security, and the need for a ‘transition’ fuel, while gas as a geopolitical instrument of power plays out a different game whose rules are neither ecological nor economic.
Fossil fuel lobbying in the EU is a big deal, with industry giants employing hundreds of highly-paid – to the tune of around €250 million over the last decade – lobbyists. Corporate Europe Observatory came up with this figure in their report, ‘Green (or grey) Deal’, and one of the report’s authors Pascoe Sabido explained this is how they “buy access and influence”.
Silvia Pastorelli, Climate and Energy Campaigner at Greenpeace, told Investigate Europe how the industry has changed tactics over the years, from climate change denial to “trying to weaken legislation and sabotage it as much as they could”. Something she sees playing out in the championing of gas as a ‘bridge fuel’ – a bridge that leads “to a worsening of the climate emergency… Recent studies [from Energy Watch] show that a switch from coal to gas power generation can actually increase the greenhouse effect by roughly 40% because of methane.”
And returning to the question of how much gas Europe actually needs (not as much as it thinks, according to Artelys), here too, the hand of industry can be felt. The process of putting together the PCI list is opaque, led by an obscure body with a clumsy name: ENTSOG (short for the even catchier European Network of Transmission System Operators for Gas). ENTSOG is registered as a non-profit organisation but it acts very much like a lobby group – in April this year it co-signed with many other gas industries, a letter to the European Commission, asking to use COVID-19 stimulus funds to pay for new “decarbonised” gas infrastructure.
It is analysis and modelling from ENTSOG that projects Europe’s future gas needs and

influences the projects that appear on the PCI list. Colin Roche from Friends of the Earth explained: “We don‘t even know what calculation method ENTSOG uses for their scenarios. Everything is extremely opaque, even ACER (the Agency for the Cooperation of Energy Regulators) who are obliged to give an opinion on the process, have significant difficulties with the lack of transparency”.

Inclusion on the list makes a project a priority to receive an injection of public money to build the infrastructure, and so the circle is closed.

Silvia Pastorelli explained that companies “have been consistently over-estimating the need for gas and basically, ENTSOG members have received something like, just short of 90% of the EU’s gas infrastructure subsidies which is a lot of money, and the fact that they basically can decide gives them lots of power.”

Gas infrastructures that are either underway or being considered include Liquified Natural Gas (LNG) terminals and pipelines. According to GIIGNL, (the International Group of Liquefied Natural Gas Importers) an international association of LNG importers, 2019 was a record year for Europe, which experienced a growth in net LNG imports of 75.6% compared to 2018. The EU views LNG imports – and thus import terminals – as important for security of supply as evidenced by the EU Energy Security Strategy and the LNG and Storage Strategy.

But according to Global Energy Monitor’s (GEM) report, ‘Gas at a Crossroads’, the EU already has a large excess of gas infrastructure. The EU gas import capacity is nearly twice as high as EU gas consumption – according to the report, “The utilization rate in 2018 was ~60%, with ~40% spare capacity.” And GEM’s survey found €117bn in new EU gas projects are in development, including €52bn for gas pipelines, €12 billion for LNG import terminals, and €53 billion for gas-fired power stations.

Pipeline construction is another contentious topic. While critics say any gas infrastructure will lead to either lock-in or stranded assets, others view current or planned carriers of gas as the future carriers of hydrogen. Technology manager for Hydrogen Europe Michael Diderich told Investigate Europe that “retrofitting gas grid infrastructure will avoid stranded assets and allow for bulk transport of energy.” But the Director of Dutch think tank CE Delft, Frans Rooijers, is sceptical. Hydrogen is not difficult technically, he says. “But economically hydrogen is currently prohibitive.” The low price of natural gas would make it infeasible for industries to use the expensive hydrogen. “The industry will continue to use natural gas for the time being,” Rooijers predicts. So, while it may be possible to repurpose some of the pipelines, the cost is likely to be the prohibiting factor.

The head of the German Institute for Economic Research, Claudia Kemfert, adds, “Every

new gas infrastructure construction will be a stranded investment.” There is a risk of bad investments on a large scale. And in the end, it will be the consumers who will pay the most. Because they finance the operator’s bad planning through network charges.

And what of hydrogen? Is it the fuel of the future or just more clever marketing? The EU thinks the former, describing it as “essential to support the EU’s commitment to reach carbon neutrality by 2050”, and, according to the EU’s Hydrogen Strategy, it is a “key priority to achieve the European Green Deal and Europe’s clean energy transition”.

But hydrogen comes in many colours and some are ‘greener’ than others. It is only climate-neutral if it is produced from climate-neutral electricity (from renewable sources). But about a quarter of the electrical energy used is lost in its production. To transport the hydrogen afterwards, it has to be cooled and compressed. If the hydrogen is then to be converted back into electricity using a fuel cell, only 20 per cent of the electrical energy originally used can be used.

The greenest of them all, unsurprisingly, is green hydrogen, in which water is split with electricity into its components, oxygen and hydrogen. The vision is to produce hydrogen in offshore wind farms and then transport it with tankers or via pipelines (adapting those currently being used for gas). There are designs for pilot plants, but energy companies have yet to build them

Although improved and more widely-used technology could lead to a significant price drop, green hydrogen is currently twice as expensive as grey hydrogen; produced from natural gas in large plants in the chemical industry. A close relation to grey hydrogen, blue hydrogen, is produced in the same way, but CO2 generated during its production is captured and stored using Carbon Capture Storage (CCS) technology. Turquoise hydrogen is also produced from natural gas, but in a high-temperature process that creates not CO2 , but solid carbon, which can be used in the chemical and electronics industry. Turquoise hydrogen is only environmentally-friendly when produced and used in large industrial plants that have a surplus of process heat.

Jean-Pascal van Ypersele, climate physicist and former deputy chair of IPCC was asked about the role of hydrogen in the EU’s climate strategy. “In theory, at least, it is certainly much better to have hydrogen coming from renewable sources and used at the same time as a vector and a storage means, than continuing to use fossil fuels,” he responded.

But Friends of the Earth’s Hydrogen expert Tara Connolly warns explicitly of a hydrogen hype. “Hydrogen will play a small but important role in Europe’s energy transition” she said. “We can’t let the hydrogen hype distract us from investing in energy saving and renewable energy.”

Carbon Capture Storage (CCS) – the process whereby CO2 is captured, transported and stored – is another emerging technology that divides opinion. Effectively banned in Germany, it has a key role in three of the four Intergovernmental Panel on Climate Change (IPCC) scenarios on how to keep global warming within 1.5 degrees Celsius. The governments of the UK, Netherlands and most notably Norway (the Norwegian government recently announced the funding of the Northern Lights CCS storage project) include CCS in their strategies to meet climate targets. Some of the arguments against it are similar to those levelled against hydrogen – cost (critics say it is too expensive but proponents expect prices to fall quickly with use) and lock-in. The Center for Environmental Law goes as far as to describe it as a tool for “climate denial” – in its report ‘Fuel to The Fire’, the authors talk about CO2 removal as a way to “save” the coal industry.

Geoffrey Maitland, Professor of Energy Engineering at Imperial College London, which has the UK’s largest CCS research programme, sees this somewhat differently. “I think the message should certainly not be that using CCS in any way reduces the momentum for the elimination of fossil fuel, but I don’t see a way of meeting 2050 climate targets without it.” He explained that even to meet the targets with CCS called for immediate investment from governments and industry working in partnership; the UK for example needs “to build probably about 20 CCS plants at the few mega-tonnes a year level in order for that to make a sufficient contribution to bringing us down to meet net zero”.

The North Sea offers a vast and remote space to store captured carbon, so it is no surprise that it is the northern European countries who see it as a way to help achieve carbon neutrality. Germany, on the other hand, has a Carbon Dioxide Storage Act which prohibits storage of CO2 on shore on any industrial scale. Geography plays a large part in a country’s ability to utilise the technology; there is no Europe-wide ‘one size fits all’ policy

And while many environmental groups have spoken out against CCS, some are in favour. “It is extremely irresponsible to say that we do not need CCS,” says Jonas Helseth, director of Bellona Europe. “We face humanity’s greatest challenge. We have not done what we should have done for many years, even though we have known. Now we no longer have the luxury of picking solutions we think are the most comfortable. We must use everything we have.”

So, what of the gas industry’s role? We have seen their hand, influencing policy behind the scenes , but how do they respond to this criticism.

Patrick Corbin, President of the French Gas Association, agreed to speak to IE, and acknowledged that gas (even when it’s called natural gas) is a fossil fuel and not compatible with targets for carbon neutrality by 2050, and so must be substituted with a renewable gas, such as bio-methane. He also saw a role for CCS.

Regarding new gas infrastructure, he compared France, whose “current infrastructures are sufficient”, to Germany, which has virtually no LNG terminals and is shutting down coal and nuclear plants. “The electricity produced by these means will have to be replaced,” he added.

And on meeting climate targets he said, “We have to do everything we can to reach the 2050 objective. In gas, there is no one solution that will allow us to reach the final objective, we need a panoply of solutions: bio-methane, hydrogen, CCS… It’s not one or the other, it’s all three.”

In response to criticism of lobbying, he responded that “the members of the commission have more means to form their opinion.”, adding that they were always transparent. “We don’t hide under a false nose, we do it as much as possible on the basis of serious and public studies.”

Looking to the future he said: “First of all, to contribute to the development of bio-methane. Then, there is pyro-gasification: how to transform waste such as wood pallets into gas that can then be injected into the network. There is also hydrogen. Finally, we cannot do without CCS. And, in the end, we put the natural gas out of business.

But biofuels take up land resources that could be used for crops. Friends of the Earth can see a limited role for bioenergy, but in their position paper make it clear that it is only “if it can reduce greenhouse gas emissions without damaging natural systems or people’s livelihoods.

The threat of climate change has been looming larger with each year that goes by, and it is only now that the situation is urgent, that governments and institutions are finally starting to take it seriously. It’s easy to blame industry, but they do what they do – deliver a service while making a profit for their shareholders – and we need to look to policy-makers to follow their bold promises with immediate action.

It’s clear there is no ‘one size fits all’ solution, but what unites all solutions is the need to take them seriously. Whether investing money in windfarms, green hydrogen, CCS or a combination of all three, there is no time for dallying and that investment and commitment needs to be made now and acted upon now. Gas may have been the bridging fuel a decade ago, but we are long past that point and further large-scale investments in gas infrastructure, regardless of arguments about hydrogen conversion and CCS, will only take us further in the wrong direction. This is compounded by reports that suggest this extra investment in gas isn’t even needed. The time to switch to alternatives is now. Another decade and it will be too late.

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