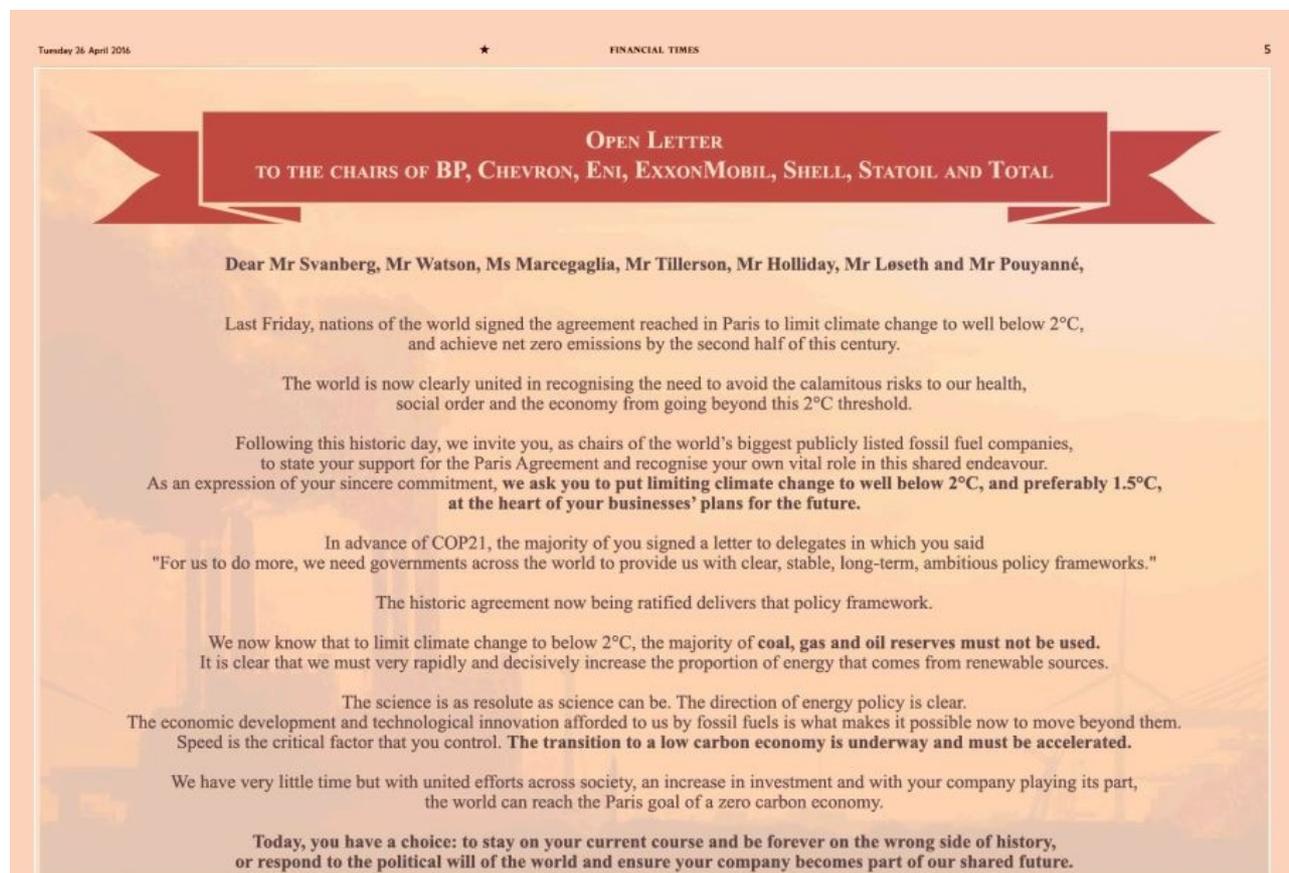




## Fossil fuels could be phased out worldwide in a decade



*Open letter in the Financial Times -April 26, 2016-, signed by 75 NGOs*

April 26, 2016. **Vision or mirage? All latest updates Saudi Arabia's post-oil future.** "If anyone needed confirmation that Muhammad bin Salman, Saudi Arabia's deputy crown prince, is a man in a hurry, they got it on April 25th. The 30-year-old unveiled a string of commitments for **ending the kingdom's dependence on oil by 2030** that are by themselves laudably ambitious in the puritanically conservative country. **Then he trumped himself, saying that the kingdom could overcome "any dependence on oil" within a mere four years, by 2020.**"

April 24, 2016. **Where did all the oil go? The peak is back** by Nafeez Ahmed, Middle East Eye. "An extensive new scientific analysis by Professor Michael Jefferson of the ESCP Europe Business School, a former chief economist at oil major Royal Dutch/Shell Group, published in Wiley Interdisciplinary Reviews: Energy & Environment says that proved **conventional oil reserves as detailed in industry sources are likely "overstated" by half (...)** "Put bluntly, the standard claim that the world has proved conventional oil reserves of nearly 1.7 trillion barrels is overstated by about 875 billion barrels. Thus, despite the fall in crude oil prices from a new peak in June, 2014, after that of July, 2008, the 'peak oil' issue remains with us." Currently editor of the leading Elsevier science journal, Energy Policy, Jefferson was also for 10 years deputy secretary-general of the World Energy Council, a UN-accredited global energy body. Earlier this year, Deloitte predicted that over 35 percent of independent oil companies worldwide are likely to declare bankruptcy,

potentially followed by a further 30 percent next year - a total of 65 percent of oil firms around the world. Already 50 North American oil producers have gone bankrupt since last year due to a crisis of profitability triggered by bottoming oil prices. The industry is also under pressure due to the growing recognition that a large portion of fossil fuels are merely "stranded assets" that must be kept in the ground to avoid dangerous climate change. The new study will place even more pressure on the oil industry with the confirmation from a former senior oil major executive that **about half of global "proved" conventional reserves are not merely "stranded", but do not even exist.**"

April 22, 2016. **Five ways to deliver on the Paris climate talks** by Leonardo DiCaprio and Fred Krupp, the Guardian. "The Paris agreement was a breakthrough, but it is up to all of us to act as guardians of these new standards – and of our future. Last December, world leaders convened in Paris in an extraordinary effort to find a global solution for reducing destructive carbon emissions – the indisputable driver of climate change – and to prevent our planet from a destructive 2C increase in global temperatures. **Today, leaders gather again – this time at the United Nations in New York – to sign the landmark agreement** (...) It is a global obligation to ourselves and to future generations. In order to meet it, our work to deliver on the promise of Paris must follow five basic principles: 1 Reducing and pricing carbon emissions (...) 2 Accelerating the transition to renewable energy (...) 3 Protecting the world's vital ecosystems (...) 4 Taking aggressive short-term action first. An emphasis on long-term solutions and mid-century goals can obscure the fact that the worst effects of climate change may become irreversible if we don't take aggressive action now. **Controlling methane emissions is the single most impactful move we can make to alter the near-term trajectory of climate change.** Manmade methane emissions cause one quarter of the increased warming we are currently experiencing. Yet cost-effective remedies exist: inexpensive technologies can reduce leaks and venting from existing oil and gas systems immediately; and innovative programmes exist to reduce landfill waste, which releases methane as it decomposes. 5 Making our cities global models for sustainability."

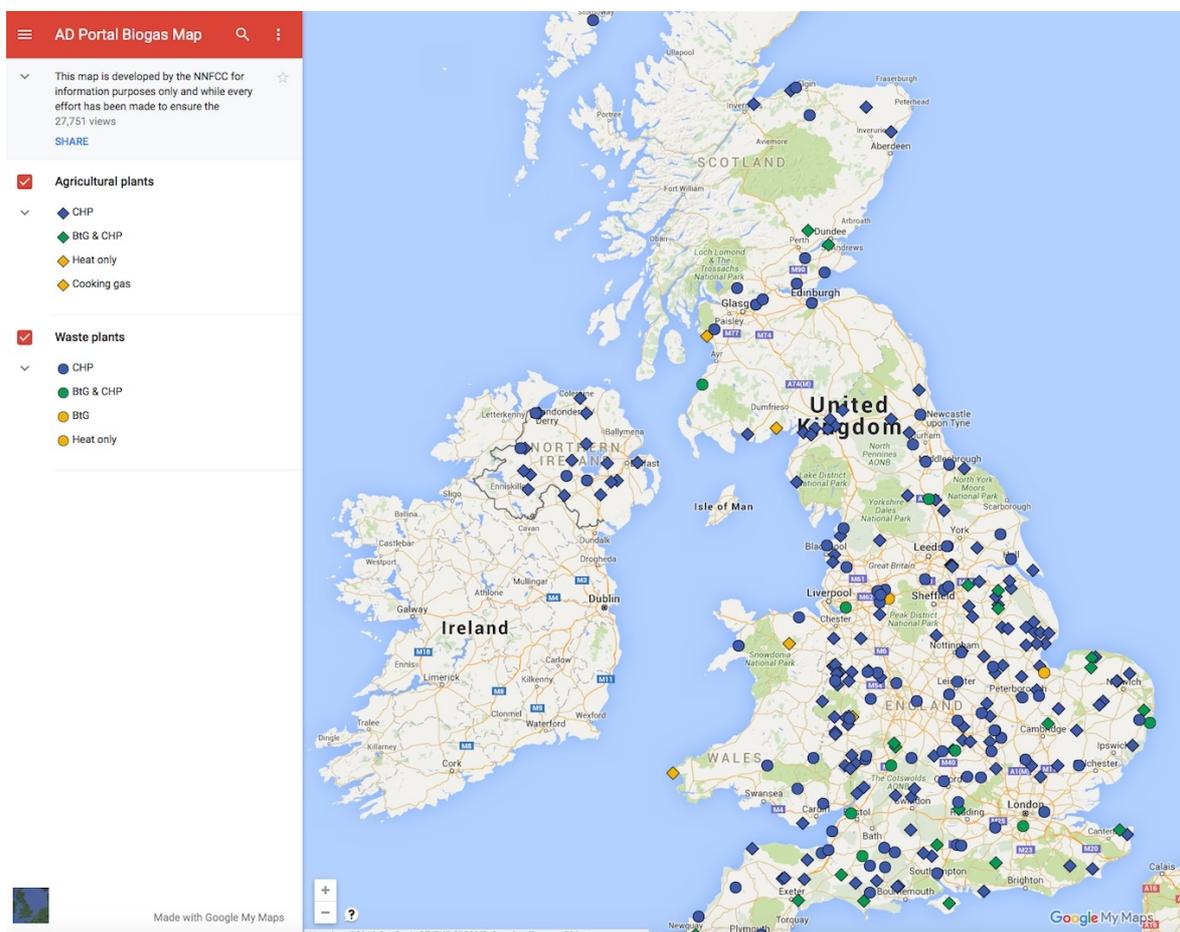


*Collectively, the national climate plans under the Paris Agreement represent at least a US\$13.5 trillion market for the energy sector alone in energy efficiency and low carbon technologies through 2030*

April 20, 2016. **The real cost of energy: why renewables make more sense** by Adnan Z. Amin, IRENA Director-general. "There is a persistent misperception that renewable energy is costly. Quite apart from the fact that renewable energy costs are coming down rapidly, energy prices do not actually reflect its real costs to society. Indoor and outdoor air pollution caused by the burning of

fossil fuels is killing millions of people worldwide. In Europe, where 600,000 people suffered from air pollution-related disease or premature death in 2010, societal costs were estimated at \$1.6 trillion. There are also other heavy costs associated with fossil fuels and nuclear power that do not apply to renewable energy: oil spills; climate change impacts; radioactive waste storage and disposal; and ocean acidification for example. Yet none of these costs are factored into the price we pay for energy - instead, we pay for them with our tax dollars, through our health insurance premiums, and with the degradation of our public lands and seas. **If energy prices were to reflect its true costs, there is no question that renewables would consistently be the least expensive option.** And this is even before factoring in the positive macroeconomic benefits of renewables, such as higher economic growth, new job creation and trade advantages (...) Since 2009, governments have been working to phase out fossil fuel subsidies, with some success. But even today, four dollars are spent to subsidize the consumption of fossil fuels for every one dollar spent to subsidize renewable energy. With oil, gas and coal prices currently at historic lows, it is now easier than ever for governments to correct this problem.”

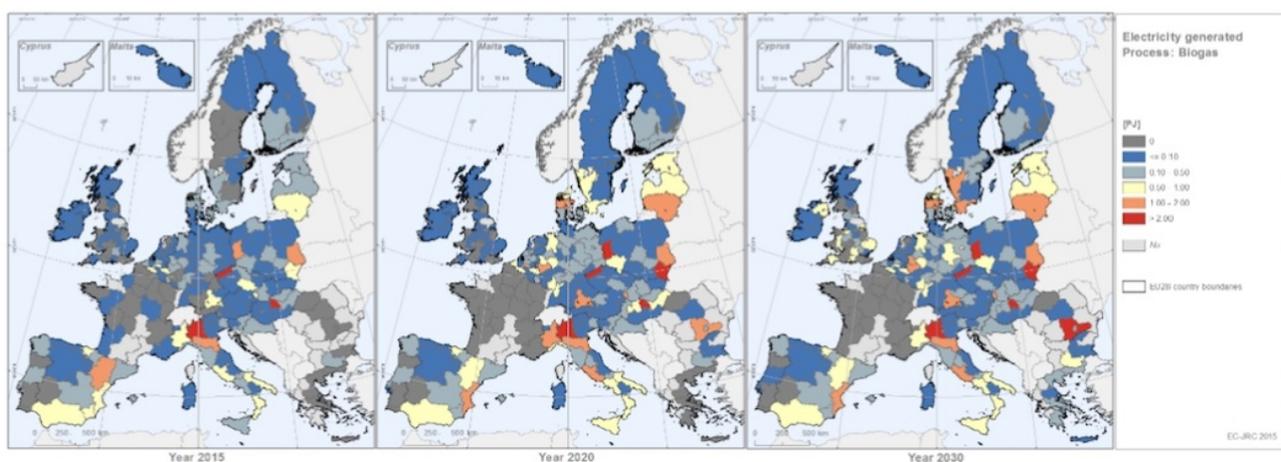
April 20, 2016. **NNFCC publishes third annual ‘AD Deployment in the UK’ report.** “NNFCC have published their 3rd annual report on ‘[Anaerobic Digestion \(AD\) Deployment in the United Kingdom](#)’. There are now 316 operational AD plants in the UK, including 47 biomethane-to-grid plants, and a further 454 AD projects under development. Understanding this deployment landscape is vital for investors, developers and policymakers alike (...) Over the last year, there has been notable progress in plant construction - over 130 new projects have come online, increasing the total number of operational AD plants in the UK to 316. **The rapid increase was caused not only by market maturity but also fear that the main policy support mechanisms, the Feed-in-Tariffs (FITs) and the Renewable Heat Incentive (RHI), were facing imminent changes or potential closure.**



*[Operational anaerobic digestion plants in the UK \(excluding water treatment facilities\)](#)*

Many developers rushed to get plants accepted onto incentive schemes before changes could be implemented. Meanwhile, because of the short-term policy cycle and threats of scheme closure, project initiation has slowed, with just over 100 AD projects entering planning over the past year in contrast to around 200 the year before. Having now seen proposed and agreed changes for the coming year in recent consultations, and with changes ranging from favourable to devastating, we expect to see continued growth for the next couple of years in the UK before the attractiveness of the development landscape falls, potentially below economic levels. The cost-control mechanisms introduced to the FITs scheme and proposed for RHI combined with deployment caps and triggers for early scheme closure are driving many developers to look outside of their core business interests or even worse, outside of the UK. Whether this decline will be terminal depends on whether the continued cost reductions experienced by the industry and increased investor confidence in the technology will be sufficient to offset the reduced incentives, increased policy uncertainty and growing competition for waste feedstock. In addition to challenges around accessing waste feedstock, proposals in the current RHI consultation to cap or remove support for biogas derived from crop feedstocks leaves developers wondering where the focus should be. Lucy Hopwood, lead consultant for Bioenergy and Anaerobic Digestion at NNFCC said, “**The past year has been an exciting but extremely frustrating one for the AD industry.** We have seen a maturing industry demonstrate how quickly it can grow whilst under immense pressure. Growth in the biomethane sector has been astounding at a time policy uncertainty has been at its peak. Proposals suggest Government remains supportive of the industry in principal but unfortunately this does not always transpire in practice. We remain hopeful about the coming year but beyond 2017 the development landscape remains questionable with the risk that under the new degeneration mechanisms the industry could be a victim of its own success.”

April 19, 2016. **What happens when demand for oil peaks?** by Amy Jaffe and Jeroen van der Veer -ex-Shell CEO-, Institut of Transportation Studies, UC Davis. “Since the First Industrial Revolution, oil and gas have played a pivotal role in economic transformation and mobility. But now, with the prospects that major economies like the United States, China and European nations will try to shift away from oil, **producers are coming to realize that their oil reserves under the ground – sometimes referred to as “black gold” – could become less valuable in the future than they are today.**”



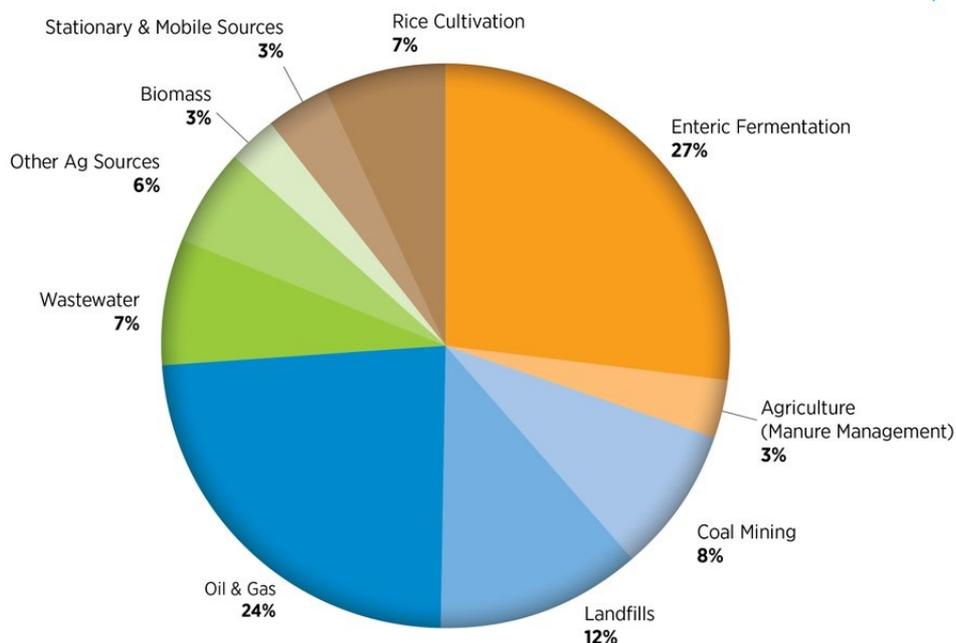
*[Electricity generated by biogas in 2015, 2020 and 2030](#)*

April 15, 2016. **Biogas as powerful as a nuclear reactor?** by Deutsche Welle, Germany's international broadcaster. April 18, 2016. **Green power that packs a nuclear punch** by Deutsche Welle. “By connecting clusters of small-scale generators such as solar farms, wind turbines and biogas facilities, **virtual power stations have the capacity equal to a small nuclear plant.**”

April 15, 2016. **Fossil fuels could be phased out worldwide in a decade, says new study.** “The worldwide reliance on burning fossil fuels to create energy could be phased out in a decade, according to an [article published by a major energy think tank in the UK](#). Professor Benjamin Sovacool, Director of the Sussex Energy Group at the University of Sussex, believes that **the next great energy revolution could take place in a fraction of the time of major changes in the past**. But it would take a collaborative, interdisciplinary, multi-scalar effort to get there, he warns. And that effort must learn from the trials and tribulations from previous energy systems and technology transitions (...) Professor Sovacool says: “The mainstream view of energy transitions as long, protracted affairs, often taking decades or centuries to occur, is not always supported by the evidence. Moving to a new, cleaner energy system would require significant shifts in technology, political regulations, tariffs and pricing regimes, and the behaviour of users and adopters. Left to evolve by itself – as it has largely been in the past – this can indeed take many decades. A lot of stars have to align all at once. But we have learnt a sufficient amount from previous transitions that I believe future transformations can happen much more rapidly.”

April 14, 2016. **Finding a United Front as Methane Becomes Key Climate Battle** by Mark Brownstein and Steven Hamburg, Environmental Defense Fund. “Oil and gas methane emissions are a huge threat. But the very same properties that make methane such a danger to the climate also mean it’s an opportunity — a chance to reduce the rate of temperature increase in the next two decades while we simultaneously do the hard work of reducing CO2 emissions. **Tackling methane is the single most impactful move we can make to alter the trajectory of climate change we experience now, even as we continue to accelerate the shift to low- and zero-carbon energy**. Manmade methane emissions cause one quarter of the increased warming we are currently experiencing globally.”

**Estimated Global Anthropogenic Methane Emissions by Source, 2015**



April 10, 2016. **Why The Marrakesh Climate Summit Will be Much More Important Than Paris** by Andrea Karpati, Daily Planet. “Did you know that this year’s UN climate summit will be even more important than Paris? (...) To make the Paris Agreement a real-world success story we

**need more than a historic political agreement, we need practical climate action to “decouple GDP from GHG” – or economic growth from greenhouse gases – as UN climate chief Christiana Figueres put it.”**

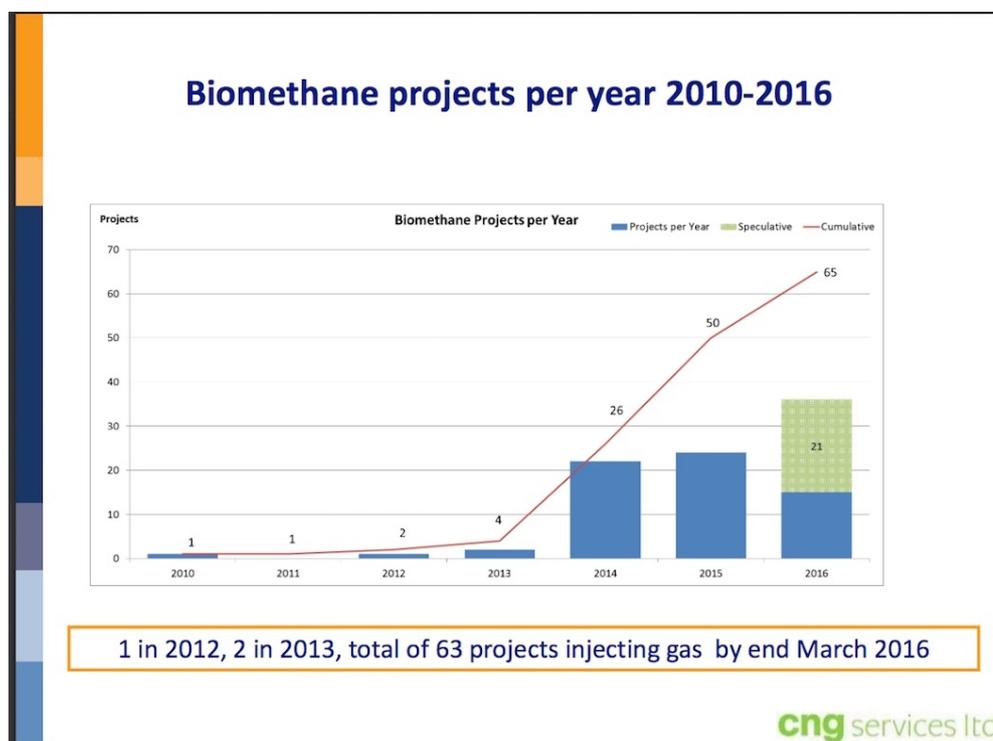
April 4, 2016. **La méthanisation, un symbole de l'économie circulaire** par Olivier Descamps, La Gazette des communes. **“Fossile et parcourant habituellement des milliers de kilomètres, le gaz peut devenir une ressource locale et renouvelable essentielle.** Certes, ce sont souvent les agriculteurs et l'industrie agroalimentaire qui sont en première ligne, mais les collectivités peuvent aussi valoriser leurs propres déchets. A cette fin, la logique territoriale pousse généralement les porteurs de projets à penser en même temps la production de biométhane, de chaleur ou d'électricité et la consommation.”

## Gas is redefining itself as a Renewable energy source

April 24, 2016. **La filière du biométhane souhaite peser sur les orientations du secteur** par Michel Delapierre, Economie Matin. “Encore peu connu du grand public, la filière veut muscler son lobbying en se dotant d'un think-tank. Le biométhane fait partie des énergies renouvelables de dernière génération. On connaissait la méthanisation, l'utilisation de déchets organiques, principalement issus de l'agriculture, pour produire de l'électricité et de la chaleur. Il est désormais possible de purifier ce gaz pour en faire du biométhane, un « gaz vert » qui n'émet quasiment pas de CO2 et pas du tout de particules fines. Outil à part entière des stratégies de transition énergétique, le biométhane suscite donc un intérêt croissant auprès des politiques et des industriels (...) Si elle est promise à un avenir radieux, **la filière a donc besoin d'étoffer son lobbying pour convaincre les différentes parties prenantes. Pour se faire entendre, elle a créé France Biométhane**, un think-tank visant à informer le public et les décideurs sur le rôle du « gaz vert » dans la transition énergétique. Autour de son président Cédric de Saint-Jouan, co-fondateur de la société Vol-V, cet observatoire regroupe l'économiste Philippe Chalmin, Denis Clodic, président de l'EReIE et les poids lourds du secteur: GRDF, Air Liquide, GRTgaz, l'Association des agriculteurs méthaniseurs de France (AAMF), Cap Vert Energie, Evergaz, la Banque Populaire Atlantique. Un groupe qui aura désormais les moyens de faire entendre sa voix dans le paysage énergétique français. ”



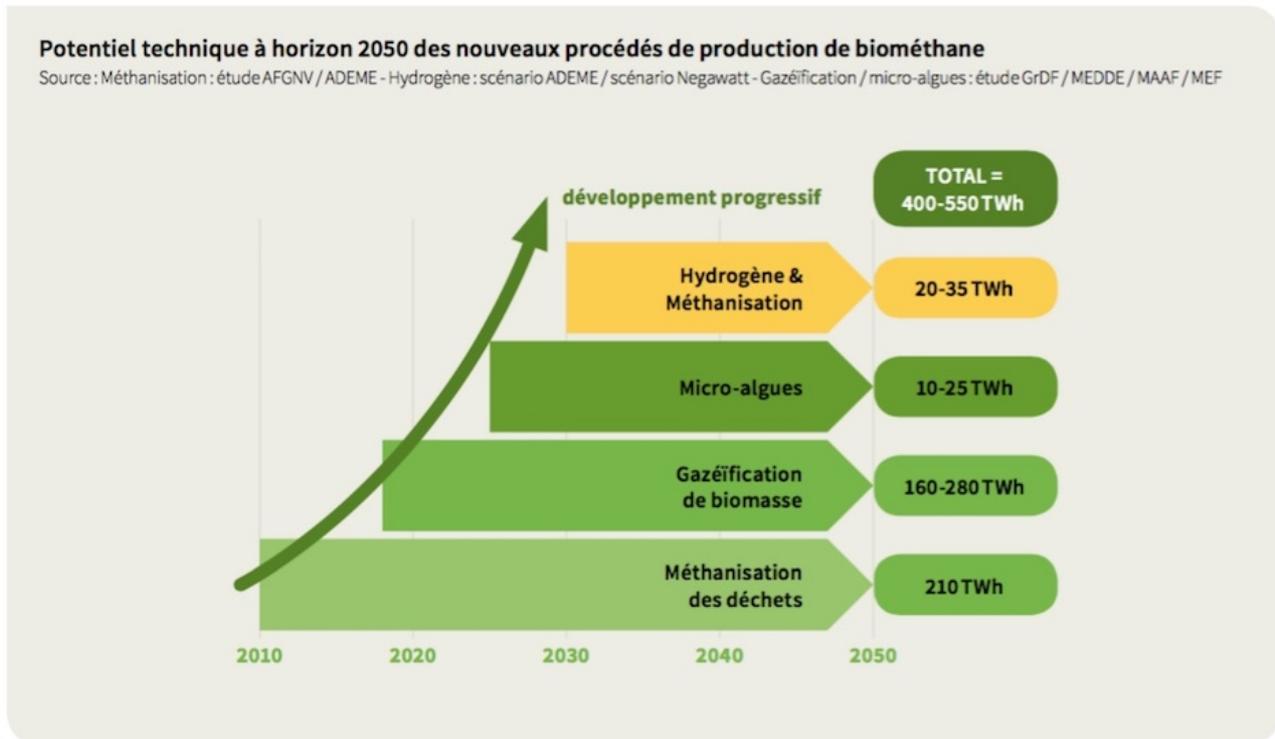
April 22, 2016. **Queen's Award for Gas-to-Grid company** by James Brockett, WWT. “CNG Services has been awarded a 2016 Queen's Award for Enterprise - the UK's highest accolade for business success - **in recognition of the company's leadership role in the creation of the biomethane-to-grid (BtG) market.** BtG is the process whereby biomethane, a renewable ‘green’ gas, is injected into the UK's gas grid, giving the UK a flexible and efficient source of sustainable energy made from organic material including food waste (...) To win the award, CNG Services demonstrated how it pioneered BtG technology, from a pilot in Didcot in 2010 through to the first commercial connection at Poundbury in 2012 and onto **a total of 65 projects by April 2016.**”



April 21, 2016. **En route vers 10% de gaz renouvelable en 2030.** “En 2015, avec 17 sites d’injection, le gaz renouvelable est devenu une réalité. Aujourd’hui, le Syndicat des énergies renouvelables (SER) et les gestionnaires de réseaux de gaz - GRDF, GRTgaz, le SPEGNN et TIGF - publient le premier Panorama du gaz renouvelable, un état des lieux d’une filière en pleine croissance et dont les premiers résultats confirment le fort potentiel de développement. Outre les informations qu’il comporte, **ce document traduit l’engagement collectif des acteurs afin de promouvoir le gaz renouvelable et, plus spécifiquement, le biométhane.** Pour la première fois, le gaz renouvelable se voit fixer un objectif. En effet, la Loi de Transition Énergétique pour la Croissance Verte (LTECV), promulguée le 18 août 2015, fixe à 10 % la consommation de gaz renouvelable à l’horizon 2030 (...) L’année 2015 aura marqué le décollage de la filière avec 11 nouveaux sites injectant dans les réseaux exploités par GRDF et, pour la première fois, dans ceux de GRTgaz, TIGF et réseau GDS. Au total, 82 GWh de biométhane ont été injectés dans les réseaux de gaz français, soit une progression de 160 % par rapport à 2014 (...) À l’horizon 2030, les acteurs estiment que 30 TWh de biométhane seraient injectés à partir de 1 400 sites, soit 5,5 millions de tonnes de gaz à effet de serre évitées. L’essor de la filière passera notamment par une simplification de la réglementation et par des mécanismes de soutien adaptés.”

April 21, 2016. **Panorama du gaz renouvelable** au 31 décembre 2015. “Le potentiel total de ces différentes filières, en incluant la filière méthanisation, est ainsi estimé entre 400 et 550 TWh à horizon 2050. Or, la consommation de gaz en France s’élève à l’heure actuelle à 421 TWh. Ainsi, on peut imaginer, en l’état actuel des connaissances, des scénarii où **le gaz distribué et consommé en France serait 100 % renouvelable et local à l’horizon 2050.** Le réseau de gaz deviendrait un

vecteur de gaz « vert », au bénéfice de la transition énergétique et des ambitions des territoires.”



April 20, 2016. **UK Biomethane Day 2016.** “At the time of the first REA UK Biomethane Day in 2012 the UK had not completed any Biomethane projects. In 2013 there was one, Rainbarrow Farm, joined by two more in 2014. By the end of 2015 there were 51 completed Biomethane projects with this rising to 63 by April 2016. **The UK has the fastest growing, most innovative and diverse Biomethane market in Europe.** To celebrate the success of this market and to showcase project developments, UK Biomethane Day 2016 gives Biogas producers and developers the chance to meet all the main Biomethane industry suppliers and to understand how the RHI is likely to change in 2016/2017. This year we are expecting over 300 delegates, with exhibition stands from all of the major suppliers of Biomethane related plant. **If you are considering Biomethane to Grid, this is the one industry event you cannot afford to miss.** You will find out how the growth of 2015 is continuing through 2016 and beyond as **Biomethane has become the leading renewable heat technology in the UK.**”

April 20, 2016. **Green Gas could produce equivalent of over one quarter of UK's 2014 LNG imports.** “A new report by the REA's biogas sector group outlines the potential for Britain to produce the equivalent of more than 45 LNG tankers' worth of renewable natural gas (in the form of biomethane) per year by 2035. In 2015 the UK's biomethane industry was the fastest growing in the world, and by the end of 2016 will produce the equivalent of four LNG tankers worth of gas yearly, which it injects directly into the UK's natural gas grid. **Current levels of biomethane production support the heating and cooking needs of up to 100,000 homes (...)** By the end of 2016 the UK will be domestically producing more green gas than LNG imported at the Dragon (Milford Haven) terminal in 2014. If the industry's growth to 2035 reaches expectations, the UK's production of biomethane will be 2.4 times greater than the volume of LNG that was imported by both the Dragon (Milford Haven) and Isle of Grain terminals in 2014. Such production could result in the UK being able to reduce its LNG imports by over a quarter (from 2014 levels). The report details the existing size and scope of the industry in the UK, the use of green gas certificates, carbon savings, and the market potential. It concludes with three case studies of best practice use, including the case of cheese producers Wyke Farms. The report has been timed to coincide with UK Biomethane Day (...) Dr. Kiara Zennaro, Head of UK Biogas, a sector group of the Renewable

Energy Association, said: **“While the government for years has touted the ‘fracking revolution,’ biomethane is actually getting on with the job of increasing our domestic gas production whilst decarbonising supply.** Biomethane is also about the pragmatic use of our existing resources- the gas is produced by digesting food and other organic wastes. By producing this gas we are improving our sustainability and policies such as UK-wide separate food waste collections would be a cost-effective means of boosting production.”

April 19, 2016. **European Parliament Launch for New Green Gas Report.** “Yesterday GEODE and Energy Networks Association (ENA) held an event in the European Parliament to mark the launch of a new green gas report, "A Sustainable Europe: Green Gas, Green Grids, Green Future" The event in Brussels brought together industry representatives and key policy makers from across Europe to discuss **the ‘energy renaissance’ which gas is undergoing, and the long term role that green gas can play in meeting demand in an affordable, secure and sustainable energy future.** The report explores the contribution which gas from renewable sources can make to low carbon heat and transport, and supporting the electricity networks in meeting the challenges of decarbonisation. It makes a number of recommendations, including setting EU wide targets for sustainable gas. Paul Brannen MEP gave a keynote speech on the future of green gas and the green economy, highlighting the **cross party support which exists for the technology.** Mr Brannen said: “The environmental benefits of green gas are becoming increasingly obvious, as are the range of other benefits offered in terms of security of supply and affordability. With the right support in the coming years, green gas could not only help us to meet our energy objectives, but we can also develop an industry which could create high quality jobs and provide economic opportunities across the EU.” Tony Glover, Director of Policy at ENA and Co-Chair of the GEODE Future of Gas Group said: **“Our gas and electricity networks will be vital facilitators of Europe’s transition to a low carbon economy,** and green gas is one area where we can make great use of existing infrastructure to meet the needs of customers in an affordable, secure and sustainable way. I am confident that the recommendations in this report will prove useful to policymakers across Europe as they look to realise the enormous potential of green gas in our energy future.”

April 18, 2016. GEODE -The Voice of Local Distributors Across Europe- **Report: A Sustainable Europe: Green Gas, Green Grids, Green Future.** “GEODE believes that Green Gas underpins the continued use of gas in a low carbon world. It creates an indigenous source of energy supporting security of supply by reducing reliance on imported energy, whilst offering the consumer the continued benefits that gas provides: flexibility, comfort, convenience and affordability. We believe that the policymakers across Europe should take a proactive approach in developing Green Gas as a key part of the European Union’s future energy mix. **Gas is redefining itself as a Renewable energy source.** The view of gas as a predominantly fossil fuel based energy source is changing. Green Gas is unique amongst renewable energy sources in that it can continue to produce energy, regardless of the weather, a key advantage over renewable electricity sources such as solar and wind power.”

context=

June, 2015. **Biogas - from refuse to energy. Report 2015** by International Gas Union (IGU). “Finished just in time for the World Gas Conference (WGC) in Paris 2015, we are very pleased to present IGU’s first report on Biogas.”

April, 2015. **Greening the Gas Grid.** BioGAS+ Newsletter. p. 7 - 9

## Green Gas Fuelling Transport

April 22, 2016. **Your Shit-Powered Car of the Future Could Be Five Years Away** by Nafeez Ahmed, Motherboard. “A growing body of scientific research suggests that shit might save the world from climate doom—or at least contribute to saving it, along with other crap humans routinely generate and throw away. A new report on this was launched in the European Parliament in Brussels on Tuesday on behalf of the European Networks Association (ENA) and GEODE, an industry association representing 1,200 plus independent energy companies across the EU. The report explores the immense potential for "green gas" produced from renewable sources to supply low carbon heat and especially transport.”

April 20, 2016. **“Gaseous” renewable fuels save carbon and improve resource efficiency** by REA News. “A new report from the REA, released for UK Biomethane Day, is detailing the opportunities that the use of renewable gaseous fuels in transportation presents. These fuels can be derived from food and other organic wastes, and upgraded for use in lorries and other heavy vehicles. The use of renewable gaseous fuels in transport, such as biomethane, reduces emissions and puts otherwise polluting organic wastes to productive use. For many organisations, it is an economic means of decarbonisation. REA estimates indicate that the UK is presently not on track to meet its legally binding 2020 renewable heat and transport sub-targets. Supporting the renewable gaseous fuels industry could help the UK to meet its 2020 targets and to make an even bigger contribution in the next decade (...) Clare Wenner, Head of the Renewable Transport Group, a sector group of the Renewable Energy Association, said: **“The use of renewable gaseous fuels in transport is an exciting advance that offers a cost effective means of decarbonising transport, especially for trucks and other heavy goods vehicles which have few available decarbonisation options.** Transport offers another outlet for low carbon biomethane from waste and we remain committed to the prospect of using society’s wastes to build a more efficient economy.”



April, 2016. **Use of gaseous fuels in transport.** Report by REA Renewable Transport Group, Working Group on Renewable Gases for Transport. **“This discussion paper sets out the case for**

**the UK to have a clear strategy and policy support for the use of gaseous fuels in transport.**

The paper summarises discussions within the REA's Working Group on Gaseous Fuels in Transport, which was formed following members' participation in the Department for Transport's 'Transport Energy Taskforce', in particular WG 5 on Advanced Fuels. **This paper primarily focuses on methane as a vehicle fuel, and especially methane from renewable sources.** It should be noted that throughout this paper and the Working Group discussions, 'biomethane from renewable sources' is interpreted to mean biomethane derived from 'waste' feedstocks (those in Annex IX Part A of the "ILUC" Directive (EU) 2015/1513 of 9 September 2015). A much larger amount of biomethane could be produced if crops are used for anaerobic digestion, as has happened in Germany, but this brings with it sustainability issues such as 'food vs fuel', indirect land use change and soil impacts. There are two other gaseous fuels that can be used in transport - liquid petroleum gas (abbreviated to LPG, this is mostly propane) and hydrogen. Like methane, both propane and hydrogen can be obtained from fossil or renewable sources (...) **The main benefit of methane (whether of fossil or renewable origin) as a transportation fuel is that it is inherently 'lower carbon'**. Burning methane to release a given amount of energy will release roughly 25% less CO<sub>2</sub> than burning diesel to release the same amount of energy. However, some of this benefit is lost due to the fact that gas engines are generally less efficient than diesel engines. The benefit is further eroded if any methane escapes unburned, whether from the vehicle itself, or upstream during the extraction/generation or distribution of the gas. Both of these points are considered in more detail below. **Gas (methane) has several other inherent benefits over diesel, most notably:** Zero particulates (from burning of the fuel itself); Gas vehicles are significantly quieter than diesel vehicles; Low cost and secure supply - natural gas is available from an increasing range of locations around the world, not just the main oil producing regions; Multiple options for further decarbonisation - renewable methane can be generated from multiple feedstocks, and gas production/handling offers multiple opportunities to extract 'pure' streams of CO<sub>2</sub> for Carbon Capture and Storage (CCS); Historically gas vehicles have had considerably lower NO<sub>x</sub> emissions than equivalent diesel vehicles. With the advent of the 'Euro VI' emissions standard for heavy duty vehicles (HDVs) this is no longer the case - although test results vary, at the Euro VI standard both gas and diesel vehicles have very low NO<sub>x</sub> emissions indeed. However, in order to achieve this, diesel vehicles have much more complex exhaust treatment technology than gas vehicles require. At this time, Euro VI vehicles have only been in service for a few months, but some fleet operators have reported much lower maintenance requirements for their Euro VI gas vehicles than for their Euro VI diesel vehicles, so this may prove to be a benefit in time."

April 18, 2016. **Oil bulls will be the losers as technology upends demand** by Diego Parrilla, Financial Times. "The end of Opec's oligopoly, the collapse of crude oil prices, the natural gas glut, the collapse in liquefied natural gas prices, the emergence of "the energy broadband" (a global network of land and "floating pipelines" in the form of LNG infrastructure), or the end of crude oil's monopoly in transportation demand were among the many concepts and contrarian conclusions that Daniel Lacalle and I proposed almost two years ago in our book, [The Energy World is Flat](#) (...) This common error — to focus on supply and take for granted oil demand and oil market share in transportation demand, ignoring the threat of displacement and substitution — can be a dangerous one. Because "without demand, crude oil is worthless — regardless of the marginal cost", and why in stark contrast to "peak oil theory" supporters, we argued that "the last barrel of oil won't be worth millions, it will be worth zero", a demand-driven view of the world and eulogy to my fellow engineers and the relentless power of technology, the most powerful flattener of all. Because **consumers don't need oil per se: they need transportation. And if they find cheaper, cleaner and more reliable means to meet their transportation needs, they will change.**"