



The Energy Transition in America

August 1, 2014. **U.S. Biogas Opportunities Roadmap: Voluntary Actions to Reduce Methane Emissions, Increase Energy Independence and Grow the Economy** In his Climate Action Plan, released in June 2013, President Obama directed the Administration to develop a comprehensive, interagency strategy to reduce methane emissions and promote cutting-edge technologies that help farmers, energy companies, and communities convert methane into a renewable energy source and grow America's biogas energy industry. Biogas is a proven source of energy used in the United States and around the world for decades. As such, **biogas systems can and should be an integral part of America's energy strategy moving forward.** There are 239 biogas livestock systems currently operating in the U.S. These projects provide enough renewable energy to power the equivalent of almost 70,000 average American homes. They reduce methane emissions by the equivalent of approximately 2 million metric tons of carbon dioxide. If the full potential was realized, a cost-effective biogas industry could produce energy to power 1 million American homes. **There is tremendous opportunity for growth in biogas systems.** The Roadmap found that with the proper support, **more than 11,000 additional biogas systems could be deployed in the United States.** If fully realized, these biogas systems could produce enough energy to power more than 3 million American homes and reduce methane emissions equivalent to 4 to 54 million metric tons of greenhouse gas emissions in 2030, the annual emissions of between 800,000 and 11 million passenger vehicles. **Biogas has proven to be a reliable resource for energy, but is underdeveloped in the U.S.** To address this, the Opportunities Roadmap identifies government actions which can help encourage technology deployment. To accelerate the use of cost-effective

Currently Operational and Potential Biogas Systems in the United States				
	Livestock Manure	Landfill Gas	Water Resource Recovery Facilities	Total
Currently Operational Biogas Systems	239 ^{xi}	636 ^{xii}	1,241 ^{xiii}	2,116
Total Potential Number of Biogas Systems	8,241 ^{xiv}	1,086 ^{xv}	3,681 ^{xvi}	13,008

Figure 5 - Currently Operational and Potential Biogas Systems in the United States Creating Energy

methane energy technology, the Opportunities Roadmap details a number of steps USDA, DOE, and EPA will take to help improve return on investment and expand America's biogas industry. These include...

context:

August 7, 2014. **A Rare Bipartisan Clean Energy Bill Is Ready for Passage** By Maria Gallucci, InsideClimate News. Congressional lawmakers from both parties are taking **a step to catalyze the nation's clean energy economy: After 32 years of restricting a crucial investment tool to expanding fossil fuels, they're pushing to open it to renewables.** Legislation is moving through both houses to tweak the tax code to let clean energy developers form a master limited partnership, or MLP, a type of publicly traded company structure not subject to corporate taxes. Master limited partnerships have two main advantages as an investment vehicle. One, they're **publicly traded on the stock market** so a broad range of investors can invest in projects, such as pension funds and individuals. Two, unlike typical businesses MLPs **don't pay corporate taxes.** For three decades, coal, oil and gas companies have used MLPs to raise hundreds of billions of dollars for pipelines, refineries and other projects. The financing vehicle is credited with helping sustain the nation's current drilling boom. But renewables have been shut out of the benefit, because the tax code prevents companies involved in "inexhaustible" natural resources like solar and wind from forming MLPs. **"It would take away a preferential advantage that fossil fuels have relative to renewable energy sources."** Letting renewables qualify for MLPs creates an insurance against attempts to end MLPs altogether by mainly taxpayer groups that view the structure as a loophole for companies to avoid paying income tax..

August 5, 2014. **Bio-what? Organic Waste Can Provide Clean Energy by Ken Kimmell, president Union of Concerned Scientists** Before I became president of [UCS](#), I served as Massachusetts' environmental commissioner, and I pushed hard to **turn an environmental problem (food waste) into a clean energy solution (biogas).** It is great to see that the federal government has signed on to this idea... I am happy to see this idea is catching on. UCS has been

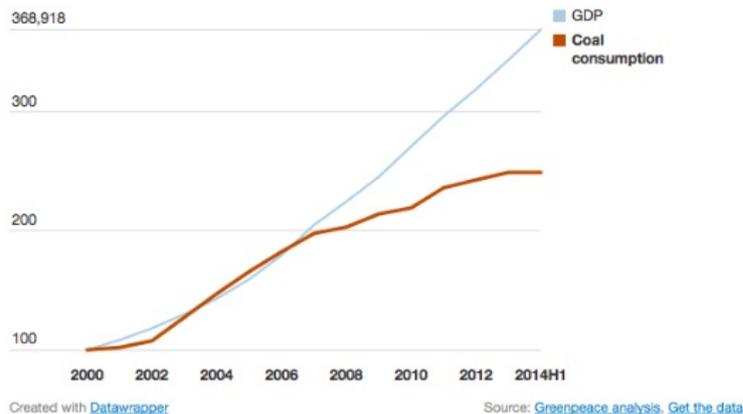
pushing it too, and last week the Obama Administration issued a [Biogas Opportunities Roadmap](#) to expand the production of biogas from anaerobic digesters

August 4, 2014. **Biogas Council Applauds Multi-Agency Roadmap** Roadmap will support growth of the U.S. biogas industry. Because biogas systems provide multiple important benefits -renewable energy, soil nutrient recycling, localized waste solutions, and new jobs- growth of the biogas industry will strengthen many sectors of our economy.

In China

Cleaner growth in China?

GDP growth against coal consumption where 100 represents GDP in the year 2000.



August 19, 2014. **China's coal use might just have dropped for the first time this century** Early data from China suggests coal use in the world's largest economy may have fallen for the first time this century – and it's not down simply to slower economic growth or a one-off boom in hydropower output. Over the past decade China's coal use doubled, causing more than half of the world's growth in carbon dioxide, bringing the country's per person emissions to the same level as the EU and culminating in the **current air**

pollution crisis hitting cities across the country. And it's that crisis that **has led to the change.** China's response to the public outrage on air pollution has led to some very ambitious policies to curb coal consumption at the provincial level, from absolute cuts in coal use by 2017 to a ban on new coal-fired power plants and factory shutdowns. As China starts the preparations of its new Five Year Plan for the years 2016-2020 – a crucial document for global CO2 emissions – the changing signals from the politically powerful coal industry are very important. **The structure of the Chinese economy is finally starting to change** away from its energy intensive basic industries and investment. The direction of travel is not yet set. China could yet try to solve its air pollution troubles by actually increasing coal consumption in some regions, and transporting gas from coal to its eastern cities. However the data suggests this adjustment seems to be slowly starting, with growth in services (excluding real estate) and private consumption only recently outpacing the manufacturing industry. If this restructuring gains pace, along with the promising growth in renewable energy, it will enable the Chinese to increase their material welfare for a long time, while reducing coal consumption.



context:

August 29, 2014. **China leading world in renewable energy investments** China will lead the world in renewable energy investments in the years to 2020 but slow progress of commercial projects and red tape threaten to curb spending growth. "Just when renewables are becoming a cost-competitive option in an increasing number of cases, policy and regulatory uncertainty is rising in some key markets," said IEA executive director Maria van der Hoeven. However, China's policy on renewables had been clear and the government's support strong, said Louis Sun, a Shanghai-based analyst at Bocom International. "Beijing is firmly supporting new energy development," Sun said. "One of the main reasons, especially in northern China, is to fight pollution. China and other non-member countries of the Organisation for Economic Cooperation and Development account for almost 70 per cent of the world renewables growth, the IEA report shows. China alone accounts for about 56 per cent of that portion.

July 23, 2014. **Millions of rural Chinese now use biogas for fuel.** The WorldBank on “Biogas: China’s Solution for Energy, Health and Environment.” With encouragement from the government, millions of rural Chinese now use biogas for fuel. A World Bank-supported project ([Eco-farming Project](#)) is helping five provinces speed up their biogas programs. Biogas also delivers significant environmental benefits in rural China.

August 19, 2014. **China’s choice in transitioning away from an oil regime** With its increasing hunger for resources, China has become highly dependent on oil and gas imports. Wang Tao (from Energy and Climate Program based at the Carnegie-Tsinghua Center for Global Policy) recommends that the country should not give into the short-sighted urge to tap unconventional oil resources, risking ecosystems and water quality alike. Instead, the country should fastly increase the use of renewable resources.

August 5, 2014. **Beijing to ban coal use to curb pollution** Beijing will ban coal use in its six main districts by the end of 2020, Xinhua state media cited the Beijing Municipal Environmental Protection Bureau as saying, as the Chinese capital steps up efforts to combat air pollution. Beijing and the surrounding area in China's northeast is often wreathed in noxious smog, which has been cited as a factor in high rates of lung cancer. Fuel oil, petroleum coke, combustible waste and some biomass fuels will also be prohibited as part of the effort to fight pollution, Xinhua said.

And in Europe

July 28, 2014. **European Commission: State of play on the sustainability of solid and gaseous biomass used for electricity, heating and cooling in the EU** Solid and gaseous biomass used for electricity, heating and cooling production is **the biggest source of renewable energy in the EU** and is key to achieving the 2020 renewable energy targets and the EU long-term decarbonisation goals by 2050.

context:

August 28, 2014. **How biogas contributes to the European bio-economy** European Biogas Association (EBA) position on bio-economy. **Anaerobic digestion as a biorefinery.** AD’s direct products, energy and organic fertiliser contribute to several European targets from greenhouse gas emission

reduction and energy security to circular economy and development of green employment. **These numerous benefits are not sufficiently taken into account by European policy-makers. This should be improved by establishing a coherent and consistent policy framework for the biogas industry.** EBA’s key messages for the EU institutions:

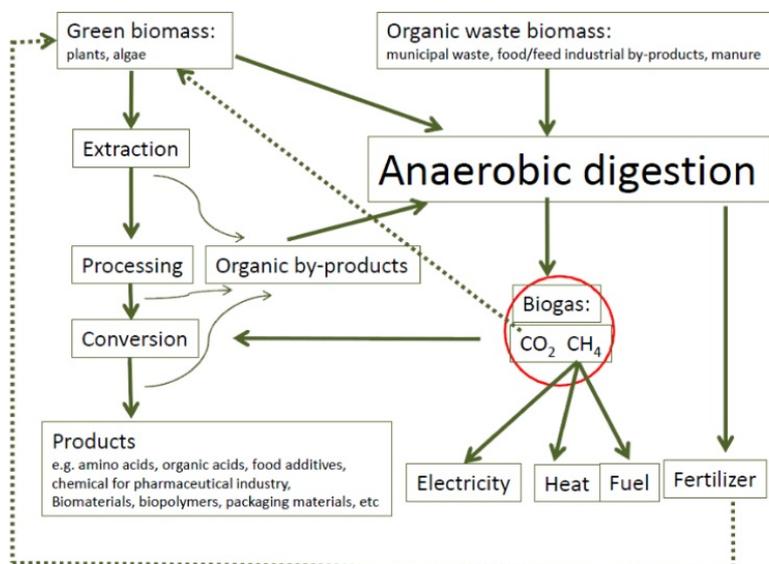
- The biogas sector is a great example of bio-based industries that produce commercially viable, sustainable and versatile products with a lot of further potential leading to energy self-sufficient production processes.
- Available biomass streams shall be balanced between different bio-based industries. Bioenergy production is complementary to manufacturing of bio-products as the energy needed in the manufacturing process must also be taken into account.

- AD’s direct products, energy and biofertiliser, contribute to numerous European targets and have a great potential to replace their fossil counterparts - by 2030 and with the right policies in place, the industry could deliver 2-4% of the EU’s electricity needs and take a 15- 30% share of the methane market.

- Further development and innovation in the field of sustainable bioenergy should definitely be promoted under EU’s public-private partnership schemes on research and innovation for biobased industries.

European Biogas Association calls for coherent, harmonised and long-term EU policies on biomass sustainability, waste management, organic fertilisers and renewable energies.

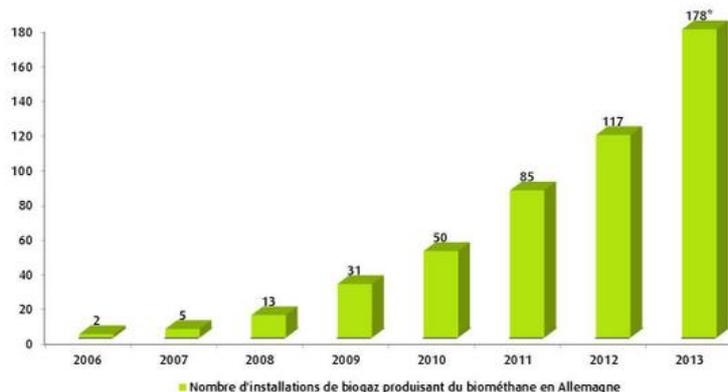
Figure 1: Anaerobic digestion in a key position in biorefinery concepts



July 22, 2014. [Germany: Biomethane industry barometer published for the first half of 2014](#) The dena [German Energy Agency] industry [barometer](#) provides information on the latest data and trends in the biomethane market twice a year. This edition focuses on the effects of the reform of the Renewable Energy Sources Act (EEG) and future market developments. In addition to quantifiable information, this short publication includes opinions and predictions by industry stakeholders on developments, opportunities and challenges for biomethane. The key results of the industry barometer for the first half of 2014 are as follows:

- 151 biomethane plants currently feed gas into the German natural gas network. This is 21 more than the last survey in November 2013.

- In terms of the mass and energy share, **corn is still the main substance used to generate biomethane**. However, in recent years, the substances used have diversified increasingly. This trend is likely to continue in 2014. The primary reasons for this are the corn cap – a restriction on the use of corn to 60 percent for plants from 2012 on – and a voluntary switch to alternative substances.



- The reform of the German Renewable Energy Sources Act (EEG) will eliminate the substance remuneration classes for certain raw materials and the gas generation bonus for biomethane. That will reduce the EEG remuneration for generation of electricity from biomethane by up to 40 percent. As a result, calculating, implementing and refinancing biogas feed-in projects via the EEG market will become far more difficult.

- The largest sales market for biomethane remains use for electricity generation in combined heat and power plants. However, as the EEG reform will result in less

favourable conditions for this, plant builders, planners, biomethane generators and traders are increasing their sales activities in the heat and fuel markets, as well as overseas.

- Biomethane export marketing increased considerably. The fact that overseas sales are now the third-largest use option for biomethane highlights the industry's efforts to overcome the sales problems on the German market and enter new markets.

August 21, 2014. [Renewable energy patents boom in Germany](#) As a first mover in the transition to renewables, Germany aims to position itself as a provider of equipment for the production of renewable energy across the world. And according to recent data, these plans have started to pay off in recent years.

August 18, 2014. [Energy transition in Germany: Today Germany meets 75% of the domestic electricity demand with renewables](#)

August 1, 2014. [Ukraine : Renewable Energy Expansion Continues with New Biogas Capacity](#) American investor-backed LNK has added the **fifth biogas power facility to the already four operating in war-torn Ukraine**. In the opening ceremony, attended among other notables by the legendary pugilist and now mayor of Kiev Vitali Klitschko and the first Ukrainian President Leonid Kravchuk, speakers expressed hope that the green facility will **mark the Russian gas-dependent country's transition to sustainable energy**. LNK's first biogas power plant was built on a landfill in the Kiev region of Ukraine back in 2011. U.S. Ambassador to Ukraine, Geoffrey Pyatt, who also attended the opening ceremony, noted that "a biogas power plant is a small but important step towards [Ukrainian energy independence](#)." "This is an evidence of trust and confidence of American investors in the prospects of Ukraine and, in particular, of the Kiev region as an investment place. U.S. supports such investments. Today in the United States 636 such plants operate, which catch over one million cubic meters of methane per day. Such projects greatly contribute to the United States energy independence. I hope this project and similar projects in the future will help Ukraine achieve its energy independence." 560 MW of plants will be built till 2020.

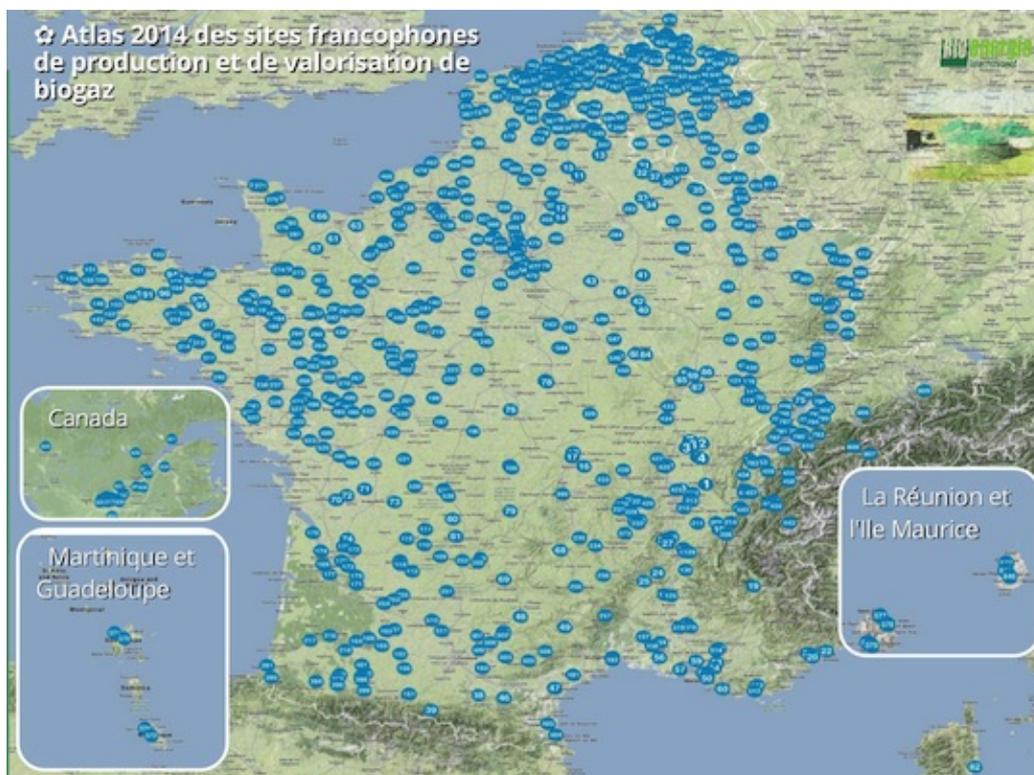
August 29, 2014. [United Kingdom connects one biogas plant a week as market takes off](#) The UK's gas transmission system operator (TSO) believes biomethane could account for 10% of the country's gas demand in years to come as the subsidy-driven market takes off. Damien Hawke, network design manager for TSO National Grid, said his team would be connecting one plant a week for the next two months – a complete turnaround from a year ago, when just one test plant was hooked up to the grid. "If you had spoken to me this time last year, we didn't have any commercial projects connected, but as we speak we have three projects connected and 12 more that we're going to do before financial year-end," said Hawke. National Grid has a further 45 projects that will likely be connected by the end of 2016, and the industry is on track to comfortably beat its target for 2020.

August 29, 2014. **UK: ‘[Community is the cornerstone of our energy future](#)’** Local people taking control of energy generation in their area is the key to a sustainable future. Since 2008, there have been more than 5,000 UK communities working to transform how they use energy, from owning generation technologies, such as wind turbines and solar panels, to increasing the efficiency of community buildings or local housing stock. And with the recent launch of the government’s Community Energy Strategy, more and more communities are set to receive help and advice on getting projects off the ground.

August 21, 2014. **[UK Investment group identifies "anaerobic digestion as a sector that is ripe for growth"](#)**

August 15, 2014. **[Fight over corporate vs citizen energy in UK](#)**. Green energy co-ops blocked by gov regulator

August 1, 2014. **[Biogas: can a green energy source be environmentally damaging?](#)** by Huw Nesbitt, The Guardian. **UK Government efforts to protect sustainable agriculture may also cut off growth of the burgeoning British biogas industry.** "When we first introduced the 'one size fits all' [tariff] in November 2011 there were no full-scale biomethane-to-grid plants in operation". Since then, DECC (Department for Energy and Climate Change) claims, plants supplying more than two megawatts have been over-compensated for their efforts. Elsewhere, the department has proposed the introduction of a banding system for the biogas industry, introducing different payments for different types of biogas plant, all of which could hit investment into the growing bio-energy sector. Industry leaders are worried. "The pace and depth of the changes are concerning," says Dr Nina Skorupska, chief executive of the [Renewable Energy Association](#). "The industry is going to have to work fast to ensure these proposals help rather than hinder the sustainable growth of the UK green gas industry." **Since 2011, the number of biogas plants has doubled to 109**, with the National Farmers Union (NFU) recommending that 1,000 be built by 2020. Many environmentalists are happy that the UK is making progress towards the government's commitment to providing 15% of the UK's energy from renewable sources. But others are anxious about the impact this rapid development is having on agriculture and the environment. It's not just government incentives that have proved a catalyst for biogas expansion; another factor has been the success of intensive arable farming. Harnessing the latent energy in decaying organic waste, **many biogas plants use so-called "energy crops" such as maize in their processes**, since they produce a higher energy yield. But their cultivation also causes soil erosion, and they produce higher carbon emissions than other organic waste. The [Farmer's Guardian claims](#) that maize grown for use in producing biogas energy has trebled to 15,000 hectares farmed in the past two years, and is likely to rise to 25,000 hectares next year. Some are critical of government regulations that exempt maize from practices, such as crop rotation, that limit damage to soil. Friends of the Earth campaigner Kenneth Richter believes the government needs to change its policy. "Maize use should not be encouraged through an exemption in post-harvest soil management under the cross compliance rules," he says. "Farmers must therefore not be subsidised for feeding biogas plants with feedstock like maize either." **In Europe, 50% of biogas product comes from energy crops**, and this has resulted in a rise in food prices for consumers.



Cet [atlas](#) présente les installations de production ou de valorisation de biogaz sous forme d'électricité, de chaleur ou encore en injection directe dans les réseaux, dans la Francophonie. En 2013, nous avons recensé 541 sites, cette année la liste est davantage exhaustive et référence 848 productions réparties entre la France (578), Flandre & Wallonie

(200), la Suisse (32), le Canada francophone (25), le Luxembourg (9), l'île Maurice (3) et la Tunisie.

August 4, 2014. **La France serait en manque de déchets à méthaniser L'émergence de la filière est menacée par la Belgique et l'Allemagne. Ces deux pays siphonnent les déchets français pour leurs propres méthaniseurs.** Si le gouvernement veut faire émerger un nouveau modèle énergétique, il va devoir réagir vite. Interrogé lors de sa visite du tout nouveau méthaniseur de déchets d'Auch la semaine dernière, le ministre de l'Agriculture, Stéphane Le Foll, a reconnu que la filière de méthanisation qu'il s'efforce de mettre en place pour produire grâce aux déchets de l'électricité et de l'énergie thermique se heurtait à un problème grandissant: les déchets français susceptibles d'alimenter les méthaniseurs prennent, pour une partie d'entre eux, le chemin de l'Allemagne et de la Belgique. Au risque de compromettre des projets de méthaniseurs, notamment dans le Nord Pas-de-Calais, par insuffisance de déchets. *«Certains déchets à fort pouvoir méthanogène s'achètent, explique le PDG de Veolia. Or le prix d'achat est supérieur en Allemagne et en Belgique à ce qu'offrent les méthaniseurs français.»* La France, très en retard en méthanisation, ne suivra pas le modèle allemand. *«Pas question de détourner de leur usage des terres agricoles, a insisté Stéphane Le Foll à Auch. Il y a 7.000 méthaniseurs en Allemagne dont 4.500 agricoles, contre 150 en France, où notre plan méthanisation vise 1.000 unités pour le monde agricole et 1.500 au total.»* C'est en effet bien moins que l'Allemagne mais, même ainsi, cet objectif des ministères de l'Agriculture et de l'Ecologie risque d'être décrédibilisé si une solution n'est pas trouvée à la fuite des déchets. *«Il faut faire jouer le principe de proximité»*, issu d'une directive européenne donnant la priorité au traitement local, a lancé le ministre, interpellé sur le sujet.

August 27, 2014. **Huit chiffres pour expliquer l'inéluctable fermeture de raffineries en France** La rationalisation des outils de raffinage en Europe et en France est inéluctable. Cette activité fait face à des surcapacités importantes et des marges au plus bas.

August 27, 2014. **In Plessis-Gassot Garbage Provides First-Ever Source of Methane Energy in France** Situated next to the garbage dump in the commune of [Plessis-Gassot](#), a powerplant that produces biogas made from garbage was inaugurated in June, 2014. It's name? [Electr'od](#). In transforming non-recyclable waste from communities and economic activities into renewable energy (electricity and heat), used by these same citizens and enterprises, Electr'od illustrates the principle of [the circular economy](#). **The biogas sector is not very highly developed in France.** In 2011, the production of electricity from biogas was only one terawatt/hour. But, in the energy transition bill unveiled on June 18, 2013, Ségolène Royal, the Minister of Ecology, stipulated that she wanted to see the number of installations of methanation increase from 250 to 1500 between now and 2020.

August 20, 2014. **"Létang Biogaz" : du gaz de ville à partir de maïs** Premier du département, l'agriculteur François-Xavier Létang à Sourduin, est le cinquième en France à se lancer dans la production de biométhane. Il produit, à partir du maïs, un gaz propre à la consommation qui lui est racheté par GrDF, pour l'injecter dans le réseau de gaz de ville. Visite du site « Létang Biogaz » qui fonctionne depuis le mois de juillet.

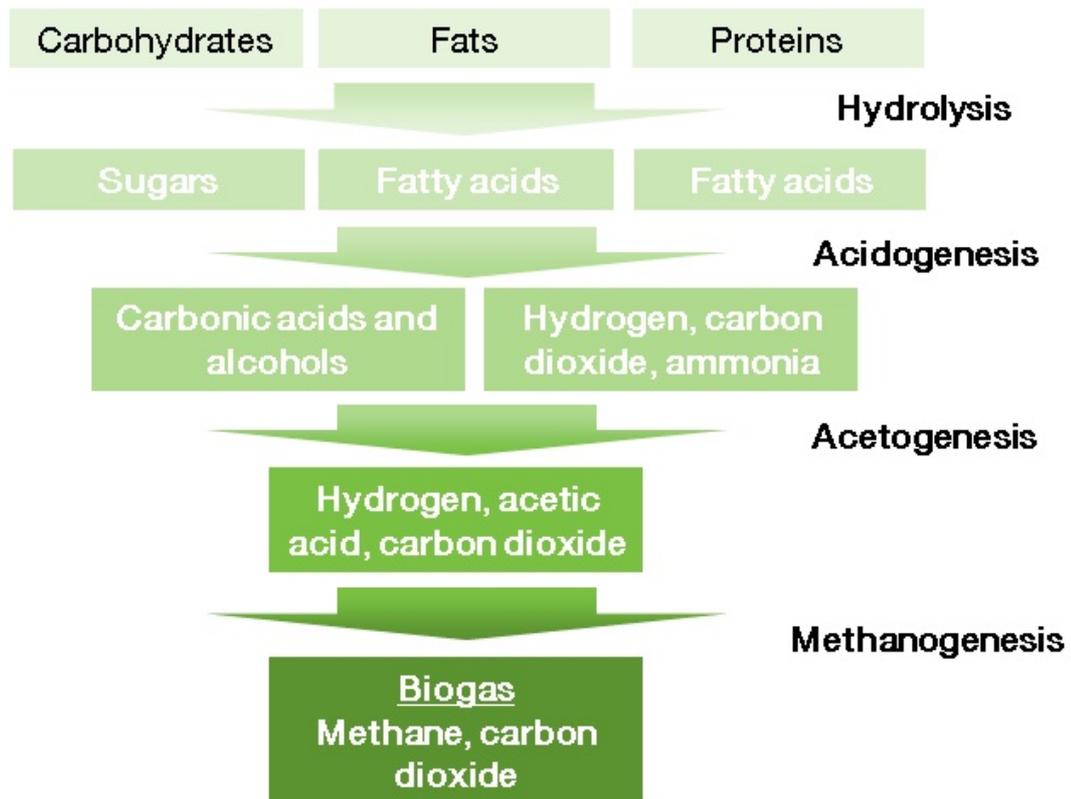
August 6, 2014. **La simplification administrative et réglementaire des projets énergétiques** Plusieurs expérimentations concernant les autorisations administratives portant sur des projets d'installation de production d'électricité à partir de sources d'énergies renouvelables sont actuellement menées dans quelques régions. Par ailleurs, la loi de programmation pour la transition énergétique devrait prévoir des mesures de simplification administrative. Ces dispositifs et mesures devraient être en tout état de cause poursuivis et améliorés.

August 22, 2014. **EU-wide Energiewende could strengthen Southern economies Climate policy to combat euro crisis - and energy policy as a key EU joint project.** With a targeted thrust of the new EU Commission, Germany's energy transition, aka Energiewende, could be introduced Europe-wide, a move that could concurrently help to heave crisis-ridden Southern Europe out of the economic crisis. Would require the legislative harmonization of energy policies through the EU in close coordination with its Member States. More specifically, the scientists of Mercator Research Institute on Global Commons and Climate Change ([MCC](#)) are proposing that **the feed-in tariff for renewables be uniform, or as uniform as possible, across Europe.** A possible source of funding in this endeavor could be the **revenues generated by a reformed European emissions trading system.** Creutzig, F., Goldschmidt, J., Lehman, P., Schmid, E., von Blücher, F., Breyer, C., Fernandez, B., Jakob, M., Knopf, B., Lohrey, S., Susca, T., and Wiegandt, K. (2014): Catching two European birds with one renewable stone: Mitigating climate change and Eurozone crisis by an energy transition, *Renewable and Sustainable Energy Reviews*, 38, 1015–1028

July 31, 2014. **APPA recurre ante el Supremo el decreto sobre renovables y la orden de la nueva retribución** La Asociación de Empresas de Energías Renovables ([APPA](#)) ha interpuesto ante el Tribunal Supremo sendos recursos contencioso-administrativos contra el Real Decreto 413/2014 y la Orden que establece la nueva retribución para las renovables. APPA indica que tanto el RD como la Orden y el resto de disposiciones regulatorias llevadas a cabo por el Gobierno en su "mal llamada reforma energética han alterado de forma súbita y unilateral el marco retributivo, que determinó el modelo financiero y de negocio en base al cual se realizaron las inversiones en los proyectos de energías renovables, en perjuicio directo de los inversores. Ello ha sumido a las empresas del sector renovable en una situación crítica e incontrolable, que pone muchas instalaciones al borde de la ruina cuando no las aboca directamente al cierre".

Green Gas: Renewable Natural Gas

August 20, 2014. **La méthanisation, un secteur qui bouillonne d'innovations** (w/ video) René Moletta, ancien chercheur de l'INRA sur la méthanisation, responsable du bureau Molette Méthanisation et président d'honneur de Biogaz Vallée, passe en revue les innovations présentées lors du salon Biogaz Europe de Nantes en 2013 : le procédé Arkolia et son homogénéisation parfaite dans le digesteur, l'apparition de micro-digesteurs, le développement des régulations automatiques de la digestion et enfin les procédés en deux phases pour les digesteurs à la ferme, avec une première phase d'hydrolyse qui augmente de 20% l'efficacité de la digestion.



www.clarke-energy.com

August 20, 2014. **Convertir els purins en biogàs** per Oriol López, Des de la Mediterrània A Catalunya es produeixen anualment 12,5 milions de m³ de purins procedents de l'activitat ramadera que estan passant, gràcies a la posada en marxa de plantes de biogàs al territori, de ser un problema ambiental per les males olors i la contaminació de les terres de conreu i dels aqüífers a ser una oportunitat com a matèria primera per a l'obtenció d'energia i de fertilitzant per als camps.

context:

July 31, 2014. **El tancament de les plantes ens deixa «amb els purins fins al coll», diu el GDT** “El GDT davant la falta de resposta al nou excipient de purins provocat pel tancament de les plantes de cogeneració, comuniquem que: Les plantes de cogeneració eren grans estufes que en realitat eren una estafa, ja que cremaven gas d'importació per produir electricitat i de passada assecar el purí. Des de l'entitat ja es va denunciar la evident irregularitat d'aquestes instal·lacions. La seva viabilitat econòmica depenia dels diners públics (subvencions a la cogeneració), utilitzats per rendibilitzar uns negocis privats: l'engreix industrial de porcs i les pròpies plantes”...

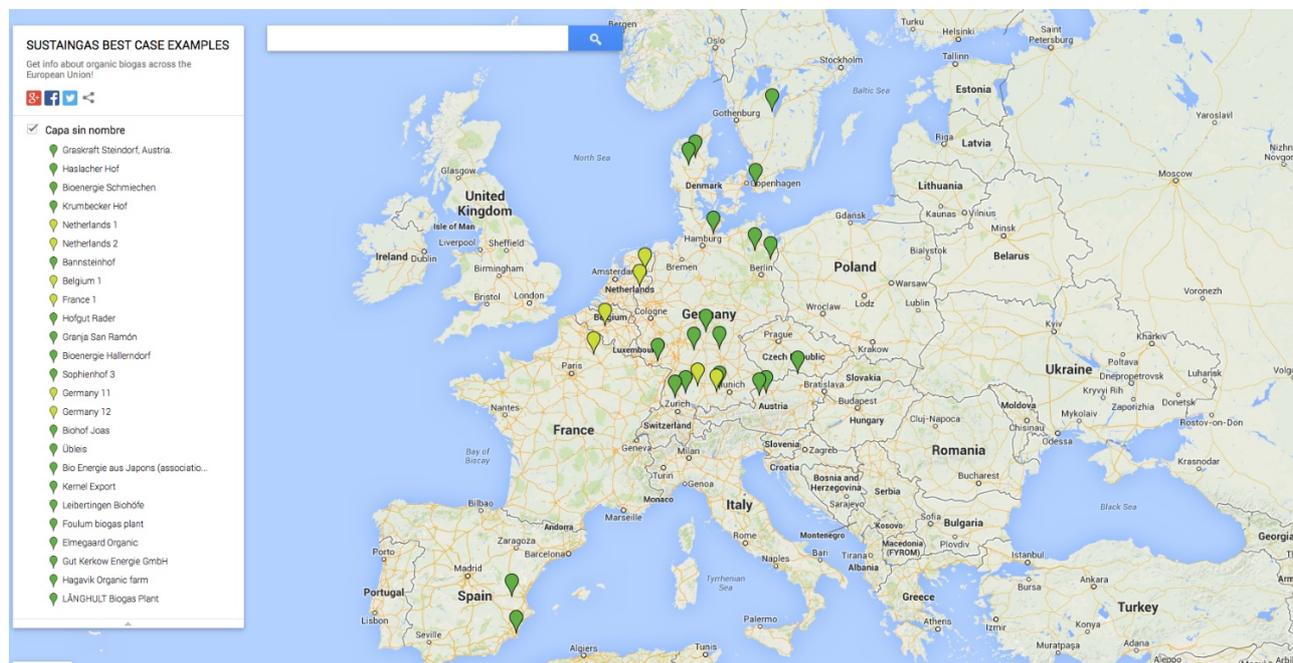
Planta de codigestió anaeròbia de purins amb aprofitament energètic de biogàs La planta de codigestió anaeròbia de Vila-sana (Pla de l'Urgell) és la primera d'aquestes característiques construïda a Catalunya i a l'Estat espanyol.

Va entrar en funcionament l'any 2007. Ecobiogás es el nombre comercial de la sociedad [Ecologic Biogás, SL](#) fundada en 2007 por los hermanos Porta como resultado de un éxito empresarial [planta biogás Vila-sana]. Es una ingeniería joven, dinámica y especializada en el sector del biogás como energía renovable y de futuro. Sus socios fundadores fueron los primeros en España en desarrollar con éxito un proyecto de planta de biogás en el sector agrícola ganadero, en funcionamiento desde finales del 2006. Ecobiogás está formada por un equipo de profesionales que aportan su experiencia y que cuentan con el apoyo de la ingeniería alemana “Krieg&Fischer Ingenieure GmbH” con veinte años de experiencia en el sector del biogás. **La planta de biogás propia nos ayuda a mejorar día a día con experiencia y conocimientos.** Todo el conjunto hace que nos encontremos en muy buena posición para afrontar los nuevos proyectos de biogás.

Alternativa a la gestión de deyecciones ramaderas. Presentació a fons de l'experiència d'Ecobiogás (funcionament, viabilitat econòmica, normativa...)

June 25, 2014. **Ecobiogás roza los 5 MW instalados** La ingeniería de centrales de biogás ha ejecutado dos nuevas plantas. Además, tiene más de 12 MW paralizados por la moratoria y estudia nuevos proyectos.

March 15, 2014. **Som Energia inaugura una planta de Biogás para generación eléctrica en Torregrossa** Más de 300 personas socias de la cooperativa de energía verde Som Energia <http://www.somenergia.coop/ca/> inauguraron la planta de Biogás en Torregrossa (Lleida). El acto se convirtió en una denuncia de la actual política energética del Gobierno español que, según la cooperativa, imposibilita nuevos proyectos renovables y de eficiencia energética. La planta de Biogás en Torregrossa, explica Som Energia, es una **planta de producción de energía eléctrica a partir de la valorización de purines, y otros subproductos orgánicos**, de 500 kW de potencia. Producirá anualmente el consumo equivalente de 1.300 familias. La mayor parte de la electricidad que genera la planta se exporta a la red eléctrica de distribución, mientras que el calor producido se utiliza para calentar la planta y como calefacción para la granja adyacente que aporta los purines, consiguiendo así un alto rendimiento energético. Som Energia se manifestó en contra de la política energética actual, contraria a las renovables, la eficiencia y la democratización de la energía. Denunció que el cambio de retribuciones en el sector del biogás amenaza con el cierre a las plantas actuales y frena el desarrollo de futuras inversiones en esta tecnología. Recordó el papel fundamental de las plantas de biogás para reducir las emisiones de gases de efecto invernadero y problemas ambientales si no se hace una buena gestión y tratamiento de los purines.



August 5, 2014. **Interactive map of the best practice examples for sustainable organic biogas production on organic farms** ([map](#))

context:

August 26, 2014. **Cattle feed or biogas? Study reveals important environmental trade-offs for biogas production on dairy farms** There is increasing interest in on-farm anaerobic digestion (AD) in the UK to manage animal manures and food waste, and to generate renewable electricity and heat via combustion of biogas. AD offers the dairy farmer undisputed benefits. However, while finding that on-farm AD of wastes can reduce greenhouse gas emissions and resource depletion, a study, published in the leading journal *Global Change Biology Bioenergy* ([DOI: 10.1111/gcbb.12189](https://doi.org/10.1111/gcbb.12189)), suggests that **the environmental balance of on-farm AD plants is strongly dependent on**

the type of feedstock used, and the management of post-process digestate. The study combined farm modelling of the agronomic effects of AD on dairy farms with an expanded-boundary life cycle assessment to capture indirect impacts such as avoided landfill of food waste and land use change associated with increased animal feed imports. The **“LCAD” tool** developed by the Bangor team **calculates the environmental balance of different feedstock mixes and AD design and management options** in terms of greenhouse gas emissions, air pollution, water pollution and resource depletion. The tool is now freely available from the Defra website. Dr David Styles, who led the research, commented: “This study confirms that anaerobic digestion of animal manures and food waste leads to significant climate change and resource efficiency benefits. However, careful management, including the installation of more expensive gas-tight digestate storage tanks, is required to avoid air and water pollution from ammonia leakage. From an environmental perspective, co-digestion of crops to generate biogas is only justifiable in limited quantities where absolutely essential for the economic viability of manure and waste digestion”.

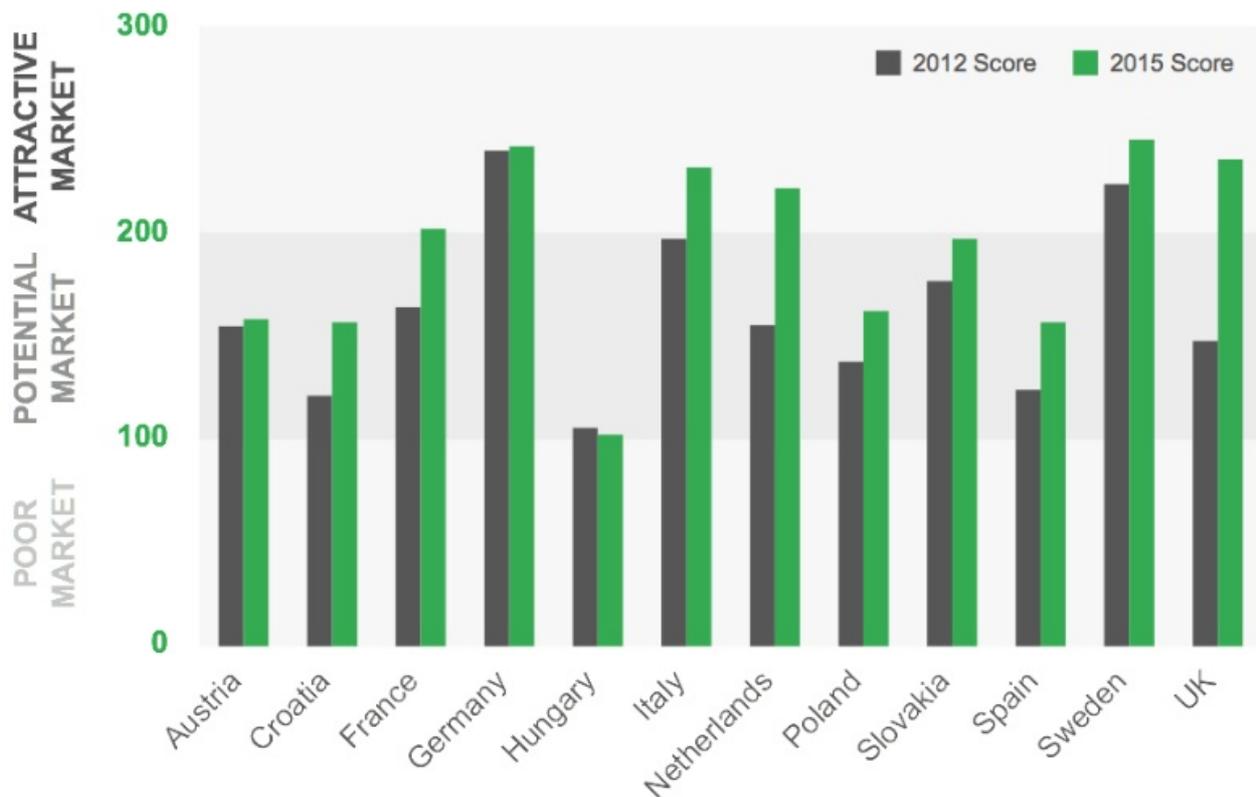
August 5, 2014. **Donnons aux agriculteurs les moyens de relever le défi de la méthanisation Méthanisation: « Favoriser les petites unités » (Coordination rurale)** Le soutien à la méthanisation doit **«favoriser les petites unités grâce à un tarif avantageux pour l'électricité et une majoration de l'aide à l'investissement»**, recommande la Coordination rurale ([CR](#)) dans un communiqué du 5 août. «Ségolène Royal annonce son ambition de créer 1.500 méthaniseurs en France pour les trois années à venir : une initiative louable qui doit cependant prendre en compte la nécessité de développer les méthaniseurs gérés par des agriculteurs qui restent les principaux apporteurs de capitaux. Même avec 51 % des parts, les exploitants peuvent vite perdre le contrôle face à des investisseurs mal intentionnés. Les 100 millions d'euros dédiés constituent déjà une bonne base, puisqu'ils permettront d'impulser une dynamique autour du biogaz, option de réduction des charges d'énergie déjà choisie par 138 exploitations en France (source : [SINOE](#)). Selon la Coordination rurale, il faut utiliser cette enveloppe pour améliorer l'indépendance énergétique d'un maximum d'agriculteurs et ne pas concentrer les fonds sur des projets démesurés où l'agriculteur ne sert qu'à épandre le digestat. La CR demande une répartition qui favorise les petites unités grâce à un tarif avantageux pour l'électricité et une majoration de l'aide à l'investissement. Le bilan carbone des matières incorporées devrait également être pris en compte pour l'attribution différenciée de subventions. **Nous redoutons que l'intérêt croissant pour la méthanisation ne soit motivé que par les complications politiques en Ukraine et donc les tensions sur l'approvisionnement en gaz de l'Europe.** Pour bien s'intégrer dans notre profession, la méthanisation doit garder les trois qualités fondamentales : diversifier le revenu, laisser les agriculteurs maîtres de la gestion des méthaniseurs et éviter la complexité administrative. Sur ce dernier point, la ministre devrait limiter la durée des dossiers à un an maximum, comme c'est le cas en Allemagne», conclut le communiqué.

August 26, 2014. **Planta de Biometanización de la FORM y lodos de EDAR de COGERSA (Asturias)** Reportaje completo del funcionamiento de la planta

R-search

August 28, 2014. **Green Gas Grids project published final report: Biomethane important energy source** GreenGasGrids project (June 2011-May 2014) aimed at establishing an exchange between the partner countries in order to **boost the biomethane market development and enhance knowledge in a pan-European perspective.** The project was funded by the Intelligent Energy for Europe (IEE) programme. The countries that took part were divided into two groups: countries where biomethane is at an early stage of development (starter countries), and countries where biomethane is already produced and a market for it exists (forerunner countries). The group of starter countries comprised the UK, Italy, Croatia, Hungary, Poland and Slovakia. Forerunner countries were Germany, France, Austria and the Netherlands. Switzerland and Sweden joined the consortium as observers. **An important achievement of the project has been the start made to establishing an international standard for biomethane trading.** The first important steps have been taken towards harmonising biomethane trading requirements and conditions. A further rollout of an EU trading system for biomethane certificates will only be possible if there is extensive harmonisation. In this regard, the GreenGasGrids project has contributed significantly to the development of this harmonised trading system, particularly through the efforts of NGVA (Natural & bio Gas Vehicle Association), whose input to CEN's TC 408 contributed to the development of common gas quality standards. **European Biomethane Roadmap:** The GreenGasGrids project has

reviewed the present market status and has thoroughly looked at the obstacles hindering the broader production and application of biomethane. The Roadmap indicates, that - if the necessary actions will be taken - **the level of biomethane production could reach 18-20 million m³, about 3% of the European natural gas consumption by 2030 and biomethane could provide min. 10% of total gaseous vehicle fuel consumption.** Whether this role of biomethane would be reached is not a technical or raw material availability question – this is essentially the question of willingness, determination and consequent support by the political decision makers.



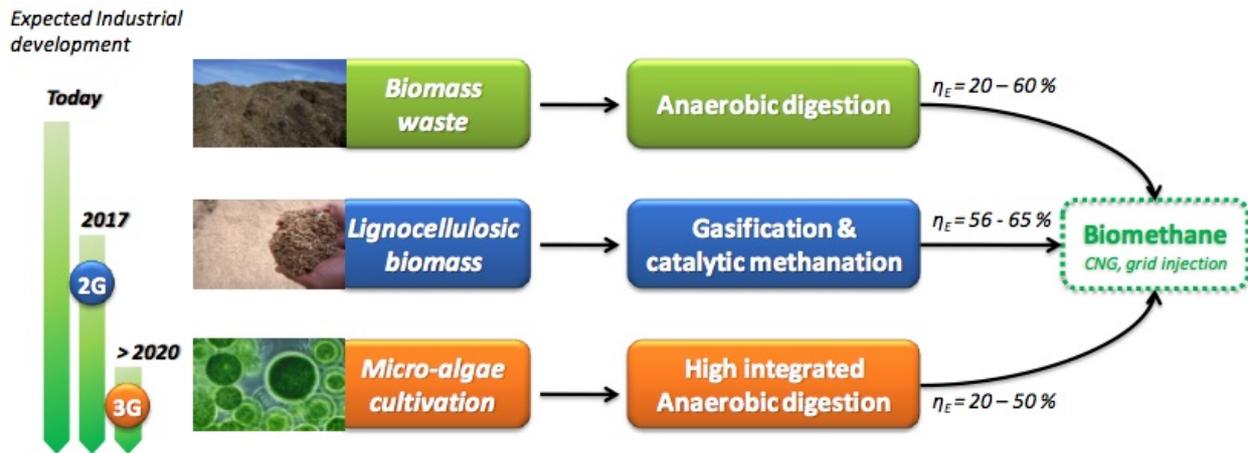
August 21, 2014. **Second-generation (2G) biomethane** [Le biométhane raconté par Jérôme Bonaldi: le projet GAYA](#) (video). Overseen by GDF SUEZ, the GAYA project combines the expertise of 11 industrial, institutional, university and technical partners in pursuit of a common goal: develop second-generation (2G) biomethane on an industrial scale. By developing and testing an innovative energy production line for high-yield biomethane, GAYA aims to optimize and establish the long-term use of biomass as a renewable energy. GAYA's end goal is to make biomass a sustainable source of value on the local level through its high-energy yield and environmental efficiency. The R&D platform is in construction in Saint-Fons and will be opened in 2015.

context:

April 24, 2013. [Open Platform to Develop Carbon Neutral Gas Supply by 2050](#) During Gas Week in the European Parliament today, gas infrastructure companies GRTgaz (France) and Swedegas (Sweden) joined the Dutch-Danish-Belgian initiative to deliver a carbon neutral gas supply by 2050. Together with the initial signatories of Gasunie (The Netherlands), Energinet.dk (Denmark) and Fluxys Belgium (Belgium). In signing the common commitment, the companies agree to work together across borders in order to exchange knowledge and best practice on ways to develop a 100% carbon-neutral gas supply by 2050, in line with the EU energy and climate goals. **Gas infrastructure enables the transportation and storage of energy at a scale unmatched by other energy systems and is essential to the achievement of the EU's low carbon scenario. New technologies and know-how will have to be integrated into the gas system** to arrive at a 100% carbon-neutral gas supply by 2050. With this challenge in mind in June 2012 Fluxys Belgium, Gasunie and Energinet.dk signed a common commitment to support each other on the path to reaching the target on carbon-neutrality. Key areas of cooperation are:

- Power to gas technologies and hydrogen transmission
- Gas and LNG as fuel for road and maritime transport
- Green gas (on the basis of biogas and gasification of biomass) and development of green certificates

This joint initiative is an open platform that welcomes all gas infrastructure companies committed to making a significant effort to develop a sustainable gas supply. **Gas infrastructure has a key role to play to support the energy transition and the development of renewable energy.**



Three generations biomethane. Each using different organic resources and production procedures, there are three generations of technology for producing biomethane that can be injected into gas networks. These technologies are being developed in succession and are intended to be used together.

Iron supplements in nano form are gentler on gut Here's something to chew over. Iron supplements in nanoparticle form **might have fewer side effects than those currently available.** Iron is found in foods such as meat and leafy green vegetables and is needed for red blood cells to transport oxygen around the body in the form of haemoglobin. But many people don't get enough of it - iron deficiency is the most common nutritional disorder in the world. As a result, many people take oral iron supplements. The form of iron we get from food is called ferritin, but this is too expensive to extract, so existing iron supplements contain soluble molecules of another form, ferrous iron. This can react adversely with chemicals and bacteria in the gut, leading to constipation and diarrhoea. "The problem with soluble iron supplements is that, when ingested, the fraction that is not absorbed will remain in the colon long enough for detrimental bacteria to start using this excess iron for their own benefit," says Dora Pereira, a researcher at the Medical Research Council's Human Nutrition Research Unit in Cambridge, UK. As a result, iron supplements upset the balance of bacteria in the gut. "Ferrous iron also reacts with chemicals in our gut, contributing to the adverse side effects," Pereira says. Her team wondered if synthetic iron nanoparticles might be a better option. Ferritin is less reactive than ferrous iron, and so less likely to interact with bacteria and chemicals in the gut. The researchers developed five synthetic formulations of ferritin made up of molecule clusters less than 10 nanometres across. They attached various combinations of organic acids so that the particles would better resemble the version of ferritin found in food. Having confirmed that nano-iron is non-toxic in cell and mouse experiments, the team tested their different formulations on 26 pre-menopausal women, a group more likely to be lacking iron than the rest of the population. The one that worked best was 80 per cent as effective as standard supplements in replenishing haemoglobin, but with no side effects. The next step is to do larger trials involving a wider range of people. "Although many people consider nanoparticles to be more toxic than soluble forms of the same substance, in the case of supplemental iron it is actually the other way around," says Pereira. **"By making oral iron an nano-particulate, we are making it safer."** However, Alana MacDonald, a dietician and spokeswoman for the [British Dietetic Association](http://www.britishdieteticassociation.org), says that supplements should only be taken as a last resort. "Mild to moderate anaemia can be effectively treated with dietary interventions. Chronic deficiency can be treated with supplements, but a food-based approach should always be the first line." Journal of reference: *Nanomedicine*, DOI: [10.1016/j.nano.2014.06.01](https://doi.org/10.1016/j.nano.2014.06.01)

July 15, 2014. **Monitoring silver nanoparticles in a wastewater treatment plant** The study showed that silver nanoparticles are converted to silver sulfide nanoparticles in the anoxic regions of the wastewater treatment plant, and silver dissolution is of minor importance. Because silver sulfide is less toxic than silver metal, these results suggest that wastewater treatment will likely withstand the threat of silver nanomaterials and diminish their potential harm in the aquatic environment.

Methane-spewing microbe blamed in worst mass extinction 'Great dying' caused by archaea population explosion, study suggests. The end-Permian extinction, or "Great Dying," that took place 252 million years ago wiped out 90 per cent of all species on Earth over 200,000 years, most of them within 20,000. The key culprit in the extinction was a microbe called *Methanosarcina* <http://en.wikipedia.org/wiki/Methanosarcina> that suddenly gained the ability to generate massive amounts of methane and release it into the seas and atmosphere. *Methanosarcina* is a type of microbe called an archaea. This type of microbe still exists, and is responsible for making cows belch methane and for producing methane from rotting garbage in landfills. *Methanosarcina* gained the ability to produce methane at roughly the time of the mass extinction. *Methanosarcina* could have used that huge stockpile of fuel to grow and expand its population rapidly and exponentially, as microbes sometimes do, the study reported, provided it had enough **nickel – a nutrient it needs to survive and grow**, but isn't always easy to come by. The Siberian volcanoes previously blamed for the extinction itself coughed up large quantities of nickel. The evidence suggests that volcanism was a catalyst rather than the cause of the mass extinction – "the detonator rather than the bomb itself."

Survival of Salmonella spp. and fecal indicator bacteria in Vietnamese biogas digesters receiving pig slurry Small-scale biogas digesters are widely promoted worldwide as a sustainable technology to manage livestock manure. In Vietnam, pig slurry is commonly applied to biogas digesters for production of gas for electricity and cooking with the effluent being used to fertilize field crops, vegetables and fish ponds. Slurry may contain a variety of zoonotic pathogens, e.g. *Salmonella* spp., which are able to cause disease in humans either through direct contact with slurry or by fecal contamination of water and foods. The objective of this study was to evaluate the survival of *Salmonella* spp. and the fecal indicator bacteria, enterococci, *E. coli*, and spores of *Clostridium perfringens* in biogas digesters operated by small-scale Vietnamese pig farmers. The serovar and antimicrobial susceptibility of the *Salmonella* spp. isolated were also established. The study was conducted in 12 farms (6 farms with and 6 farms without toilet connected) located in Hanam province, Vietnam. Sampling of pig slurry and biogas effluent was done during two seasons. Results showed that the concentration of enterococci, *E. coli*, and *Clostridium perfringens* spores was overall reduced by only 1-2log₁₀-units in the biogas digesters when comparing raw slurry and biogas effluent. **Salmonella spp. was found in both raw slurry and biogas effluent.** A total of 19 *Salmonella* serovars were identified, with the main serovars being *Salmonella* Typhimurium (55/138), *Salmonella enterica* serovar 4,[5],12:i:- (19/138), *Salmonella* Weltevreden (9/138) and *Salmonella* Rissen (9/138). The *Salmonella* serovars showed similar antimicrobial resistance patterns to those previously reported from Vietnam. When promoting biogas, farmers should be made aware that effluent should only be used as fertilizer for crops not consumed raw and that indiscriminate discharge of effluent are likely to contaminate water recipients, e.g. drinking water sources, with pathogens. Relevant authorities should promote safe animal manure management practices to farmers and regulations be updated to ensure food safety and public health.

context:

January 17, 2012. **Iron Availability Increases the Pathogenic Potential of Salmonella Typhimurium and Other Enteric Pathogens at the Intestinal Epithelial Interface** Oral iron supplementation is not without risk as iron could, in addition to inducing pathogenic overgrowth, also increase the virulence of prevalent enteric pathogens

Responsible Research and Innovation

August 21, 2014. What is Responsible Research and Innovation? [Responsible Research and Innovation \(RRI\) is now on Wikipedia](#): Responsible Research and Innovation (RRI) describes a **research, development or innovation process that takes into account effects and potential impacts on the environment and society**. It can be defined as “a transparent, interactive process by which societal actors and innovators become mutually responsive to each other with a view to the (ethical) acceptability, sustainability and societal desirability of the innovation process and its marketable products in order to allow a proper embedding of scientific and technological advances in our society.” The approach is and has been part of several European Framework Programmes and has been developed in scientific and technological publications in journals and conferences, as well as in projects. By June 2014, there were at least a dozen international research projects, most of them funded or co-funded by the European Commission, that were involved in developing a Responsible Research and Innovation governance framework. Apart from the well-known definition given in the first paragraph of this article, there are several other definitions of Responsible Research and Innovation (RRI)...

context:

November 19-21, 2014. International Conference: [“Science, Innovation & Society: achieving Responsible Research & Innovation”](#) The conference’s theme will be the evolution of EU funded activities and policies on Responsible Research and Innovation. The **transition from “Science and Society” to “Science in Society” and ultimately to “Science with and for Society”** will be discussed.

August 28, 2014. [Responsibility and innovation - where are we coming from? by Hilary Sutcliffe](#)

June 27, 2014. [Norway's Research Ethics council calls fossil fuel research "indefensible"](#) It is indefensible from a research ethics perspective if petroleum research hinders processes of transition to sustainable energy and thus prevents achievement of UN climate goals which Norway has pledged to uphold.

2014. [RRI Tools](#), a project to foster Responsible Research and Innovation (RRI) with and for society. Europe **wants to promote not only excellent but also socially desirable science and technology**: it is vital to align the objectives of research and innovation processes with the needs and values of the societies that support them. Responsible Research and Innovation is:

- A concept which has been adopted as a cross-cutting issue at Horizon 2020, the EU Framework Programme for Research and Innovation 2014-2020;
- Doing science and innovation with society and for society, including the involvement of society ‘very upstream’ in the processes of research and innovation to align its outcomes with the values of society;
- A wide umbrella that brings together different aspects of the relationship between science and innovation and society: **public engagement, open access, gender equality, science education, ethics and governance.**

