



## Deep Decarbonization

July 8, 2014. [Launched](#) the First Global Cooperative Effort to Support United Nations Climate Talks: [Deep Decarbonization report](#). The Deep Decarbonization Pathways Project is a collaborative initiative to understand and show how individual countries can transition to a low-carbon economy and how the world can meet the internationally agreed target of limiting the increase in global mean surface temperature to less than 2 degrees Celsius (°C). Achieving the 2°C limit will require that global net emissions of greenhouse gases approach zero by the second half of the century. In turn, **this will require a profound transformation of energy systems by mid-century through steep declines in carbon intensity in all sectors of the economy, a transition we call “deep decarbonization.”**

### context:

July 12, 2014. [Zero Carbon Equals Economic Catastrophe](#) by Sierra Rayne, Canda Free Press. Despite the UN's claims to the contrary, the evidence is mounting that emissions reductions harm our economies.

July 11, 2014. [UN: Pathways to Deep Decarbonization](#) [How to cut carbon emissions in order to prevent dangerous climate change. Biogas & Nanotechnology role](#). “In 2050, second generation biofuels and biogas represent, respectively, 22% of liquid fuels and 53% of gas. An area of study particularly germane to current challenges in low-carbon technologies is the nanotechnology.”

## Fossil Fuel Divestment Movement



July 1, 2014. [UK doctors vote to end fossil fuels funding](#) by Alex Kirby, Climate News Network. “The British medical profession’s influential national organisation has sent out a strong message about climate change by **deciding to withdraw its funds from the fossil fuel industry and to support renewable energy instead** – making it the first national medical organisation in the world to do so. This is in keeping with the statement by the recent [Lancet Commission](#) that **climate change “could be the biggest global health threat of the 21st century”**. The decision of the BMA adds momentum to a growing divestment movement, including universities, cities and theological institutions and foundations around the world.”

### context:

July 7, 2014. [Why the fossil fuel divestment movement is a farce](#) by Matthew Cunningham-Cook, Al Jazeera. **Focus on stocks ignores fact that much of dirty energy investment takes place on private markets.** “College campuses across the country have been abuzz with protests calling for the divestment of university endowments and public pension funds from fossil fuels. As a result of the pressure, Stanford University has begun to divest its \$18.7 billion endowment from coal stocks. Union Theological Seminary in New York has begun a divestment process as well. Cities have borne the brunt of protests as well, and a growing number of them are making decisions to stop investing city funds in dirty energy. It appears to be a noble, even necessary idea. The campaign, led largely by [350.org](#) (which is headed by the environmental writer and activist Bill McKibben), seeks to stop the continued exploitation of fossil fuel reserves, which it rightly considers a one-way road to climate-change disaster. But the fossil fuel divestment movement is, at best, a misguided endeavor and, at worst, a self-defeating roadblock. The changes being proposed will do little to stop investment in the fossil fuel economy. Severely hampering the campaign is its focus on publicly traded securities such as stocks and bonds — when much of the fossil fuel investment today is taking place on private markets.”

April 3, 2014. [UN Tells Fuel Producers to Abandon Reserves Amid Record Output](#). By Alex Morales, BloombergBusinessweek. “In a world that has never produced so much oil and gas, the United Nations is seeking to persuade producers they need to leave three-quarters of their reserves in the ground and explore cleaner energy to combat climate change. “The fossil fuels we do use must be utilized sparingly and responsibly,” Christiana Figueres, UN climate chief said to the industry. **“Three-quarters of the fossil fuel reserves need to stay in the ground.”** “The

time for experimentation, for marginal changes and for conditional response is now over,” Figueres will say. “It is time for the oil and gas industry to truly lead with a principled response that ensures its appropriate and profitable participation in the energy mix of the future.” Figueres said **gas could be used as a bridging fuel between high-carbon coal and emissions-free renewables.**”

October 24, 2013. **Investors ask fossil fuel companies to assess how business plans fare in low-carbon future.**

Coalition of 70 investors worth \$3 trillion call on world’s largest oil & gas, coal and electric power companies to assess risks under climate action and ‘business as usual’ scenarios. The investor effort, called the Carbon Asset Risk (CAR) initiative, is being coordinated by [Ceres](#) and the [Carbon Tracker](#) initiative, with support from the Global Investor Coalition on Climate Change. “We would like to understand [the company’s] reserve exposure to the risks associated with current and probable future policies for reducing greenhouse gas emissions by 80 percent by 2050,” the investors wrote in their letter to oil and gas companies. “We would also like to understand what options there are for [the company] to manage these risks by, for example, reducing the carbon intensity of its assets, divesting its most carbon intensive assets, diversifying its business by investing in lower carbon energy sources or returning capital to shareholders.”

## The Changing Regulations & Its Effects:

### Regulatory Hurdles for Biogas in Germany...

July 4, 2014. Press release: **New German Renewable Energy Act (EEG) shoots biogas in Germany.** “European Biogas Association (EBA) strongly criticises the amended Renewable Energy Act (EEG), approved by the German Parliament on June 27. This **U-turn in German biogas policies** will nearly stop the already weakening growth in Germany, losing its chance to reduce dependence on imported natural gas.”

#### context:

July 18, 2014. **German biogas sector slows down considerably.** “Germany’s new policy on renewables that takes effect on August 1 clamps down on biogas, and the effect is already being felt, according to data published last week by the German Biogas Association (Fachverband Biogas)”

July 18, 2014. **RWE scraps German biogas plans.** RWE Innogy and Naturdünger Münsterland have decided to scrap plans for a 4.2MW biogas plant at Velen in Germany, following changes to the German renewable energy act (EEG). **The companies said the 11 July reforms, which will enter into force of 1 August, make the planned biogas project uneconomical.** The partnership between the two companies has also been dissolved, as well as RWE’s cooperation with another biogas partner Westfälisch-Lippischer Landwirtschaftsverband. RWE said: “Since the new EEG also prevents the likelihood of similar projects in the future, RWE Innogy and WLW are also ending their collaboration.”

July 17, 2014. **olicy reform may hinder German biogas development** By Anna Simet, Biomass Magazine. “One of the most significant changes in the EEG is that biogas production in Germany will be capped to 100 MW annually beginning on August 1, and feed-in tariffs will be gradually withdrawn from all new plants above 100 kW. The revised EEG is already impacting planned projects. On July 17, RWE Innogy GmbH announced that it has decided not to build a planned 4.2-MW biogas plant in Germany’s Velen municipality, as the facility will end up being uneconomical once the new EEG takes effect.”

July 16, 2014. **Get this: Germany does not have generous subsidies for renewables** by Craig Morris, Energy Post. **“It has feed-in tariffs that, like public healthcare products and services, are prices agreed between government and industry to ensure that manufacturers and service providers remain profitable without gouging customers...** Many of us in Germany wonder **why top EU experts not only still refuse to recognise the success of feed-in tariffs** [they do not guarantee a return at all – simply set a price per kilowatt-hour you sell to the grid], but also continuously fail to describe them properly. We need not look far for the reasons – **outside Germany, energy experts think the energy transition is something for utilities to handle, so the German bottom-up movement is a threat, not the solution. Energy cooperatives have no major lobby group in Brussels** – the first lobby group for energy cooperatives in Germany, the DGRV, was founded in November and still only works in German from Berlin – so the press still mainly speaks with experts from the major corporations that could be hurt in the transition.”

July 14, 2014. **German Biogas Association: new plant construction tends to zero** @FVBiogas. “More than four percent of Germany’s gross electricity consumption comes today from biogas plants. A total of 7,850 biogas plants nationwide produced in 2013 approximately 24.3 terawatt hours of electricity - and thus served nearly seven million average households. Through the use of biogas 17.6 million tonnes of CO 2 are saved”

## And Regulatory Support in USA & France

July 23, 2014. **A New Biogas Tax Credit in New York**. New York's Greek Yogurt Makers & Cottage Cheese Producers Create Hundreds of Millions of Pounds of Whey Byproduct Each Year & Spend Millions to Dispose of It – Tax Credit Would Spur New Biogas Plants to Open, Turn Byproduct into Renewable Energy Source. In total, the number of Upstate New York dairy farms is 35,635, and the total number of Upstate New York dairy processing facilities is 125. Senator Schumer is pushing a Biogas Tax Credit Act, which would add biogas to the list of renewable energy sources that receive a 30 percent tax credit for the construction of new facilities. **“We are pleased that the Senator is pushing for legislation that recognizes the vital role that Biogas plays in the U.S. Economy,”** said Lauren Toretta, President of CH4 Biogas LLC. According to the National Renewable Energy Laboratory, New York State as a whole has the potential to produce 263,082 tons of methane from a variety of biogas sources. A bill to establish a biogas tax credit has already been introduced in the House of Representatives, by Congressmen Ron Kind (D-WI) and John Lewis (D-GA). Schumer noted that similar tax credits exist – called Investment Tax Credits (ITCs) – for investments in other forms of renewable energy. Schumer's proposal would just be adding biogas to the list of renewables eligible for a 30% tax credit.

July 21, 2014. **Méthanisation : possibilité d'exonération de la taxe foncière**, Les collectivités territoriales disposent, selon la loi de finance pour 2013, d'un droit d'exonération de la taxe foncière sur les propriétés bâties pour les installations servant à la production de biogaz. Prévues à l'article 1387 du code général des impôts, cette mesure doit **permettre de favoriser le développement de projets de méthanisation engagés en zone agricole**. Elle vient consolider les actions déjà mises en place et prévues par le ministère, comme le développement du fonds chaleur ou le lancement d'appels à projets pour l'installation de méthaniseurs en territoires ruraux.

## Toward Local Energy Economies

July 21, 2014. **Sense of Community Aids Establishment of Renewable Energy Cooperatives**.

“The establishment of cooperative biogas projects is aided by strong community spirit, regional traditions and farmers' sense of responsibility for their local area, according to a new Italian study. The findings suggest that renewable energy policy could benefit from taking account of community aspects at the local and regional levels.”

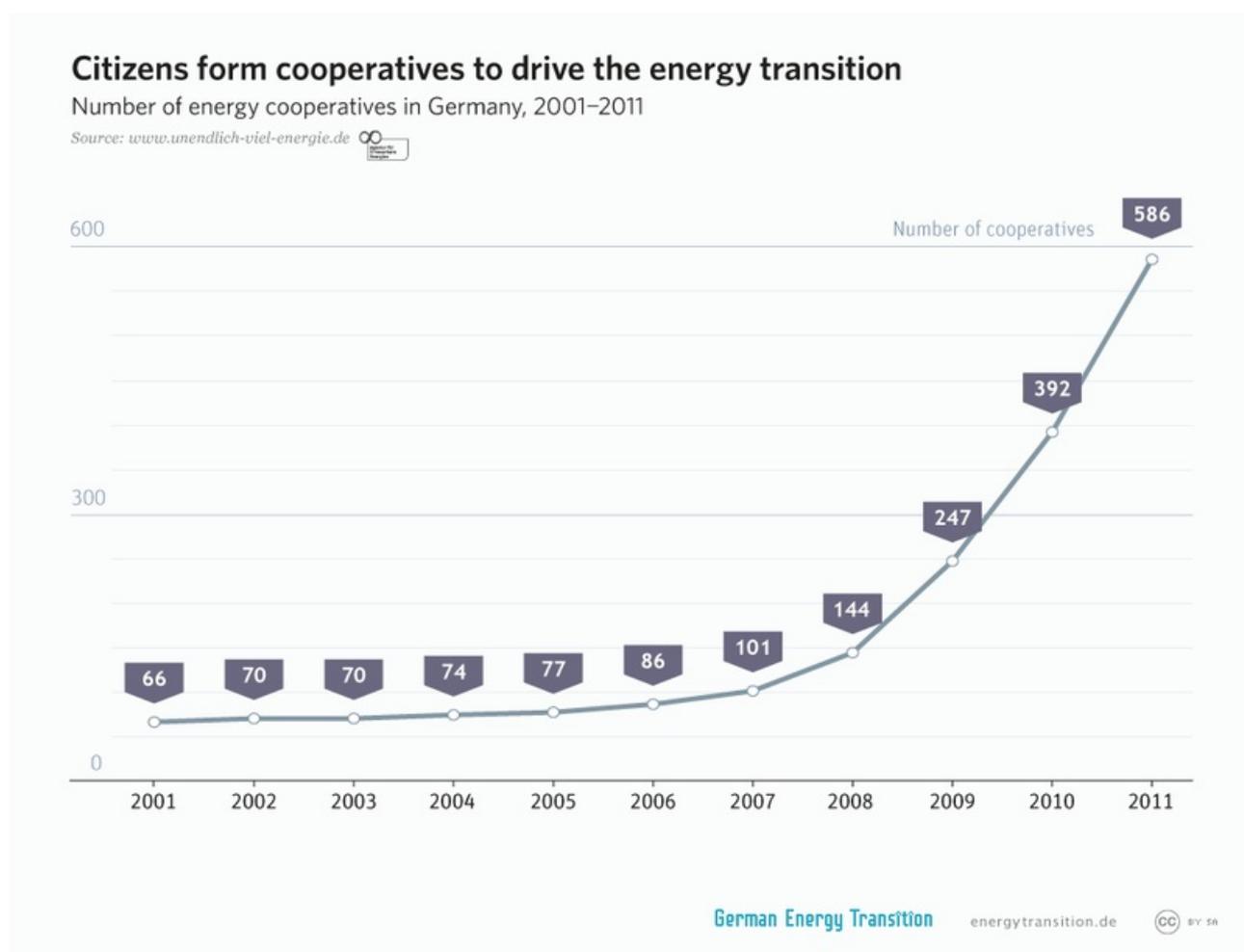
### context:

July 24, 2014. **Households in Germany can choose from an average of 72 energy suppliers**. - in the UK we have 25 suppliers IN TOTAL. “The ResPublica Essay, ‘**Creating Local Energy Economies: Lessons from Germany**’, which is supported by the Winston Churchill Memorial Trust and Co-operative Energy, argues that the UK can deliver on greater transparency, lower household bills and genuine competition if communities, local authorities, housing associations and small businesses could enter into the supply market and sell their energy locally. **At present, there are no local suppliers in the UK. In Germany, the story is different. From 2010 to 2012, 90 communities and municipalities had entered into the supply market and 190 communities had bid to run their local electricity distribution network.** A growing number of local groups are appealing to private energy companies to put their local utility back into public hands. There is an evident movement in Germany, not toward re-nationalisation or even re-municipalisation, but toward a much more constructive, locally-governed infrastructure, which can enable community participation and ensure transparency, efficiency and the betterment of their neighbourhoods. Lord Smith, Chairman of the Environment Agency, says: **“This essay shows very clearly how Germany has succeeded – where we have so far failed – in creating a bottom-up revolution in energy supply and distribution.** Property-level renewable installation, community energy companies, small-scale local schemes: these have been the way forward for German electricity production, and it's been a big success. We could learn some serious lessons here.””

March 15, 2014. **Inauguración planta de biogás de Som Energia** “La planta de biogás de Torregrossa (Lleida) que hemos hecho posible entre todos los socios y socias de la cooperativa, ya está funcionando 24 horas al día y casi al 70% de su capacidad. Os invitamos a la visita/inauguración de la planta, que organiza la comisión de biogás de la cooperativa”. **Nueva planta de biogás con denuncia de la política energética**. “Un alcalde que la considera básica para impulsar el territorio, el Institut Català d'Energia (Icaen) que presenta alegaciones para mejorar la

retribución del biogás en la propuesta planteada por el Gobierno y Som Energía que la pone de ejemplo de **“cómo, desde la ciudadanía, se puede contribuir a construir un modelo más eficiente energéticamente y más respetuoso con el medio ambiente”**. La inauguración oficial sirvió para dar la bienvenida a esta iniciativa de la cooperativa Som Energía dentro de un marco de reivindicación de las renovables. Tras recordar **“el papel fundamental de las plantas de biogás para reducir las emisiones de gases de efecto invernadero y los problemas ambientales si no se hace una buena gestión y tratamiento de los purines”**, Som Energía denunció que **“el cambio de retribuciones en el sector del biogás amenaza de cierre a las plantas actuales y frena el desarrollo de futuras inversiones en esta tecnología”**. La coordinadora de la comisión de biogás de Som Energía, Belén Covelo, añadió que **“estamos inaugurando una instalación que es el ejemplo de cómo, desde la ciudadanía, se puede contribuir a construir un modelo más eficiente energéticamente y más respetuoso con el medio ambiente. Pero la política actual va en sentido contrario de manera irresponsable”** El objetivo de **Som Energía** es convertirse en una cooperativa sin ánimo de lucro que reúna a miles de personas con el deseo de cambiar el modelo energético actual y trabajar para alcanzar un modelo 100% renovable. No debemos esperar a que los gobiernos lo hagan por nosotros, lo podemos hacer nosotros si nos lo proponemos.

November 11, 2013. **Energy democracy: German energy co-op headquarters opens in Berlin.** “As the threats to German energy democracy increase, the growing number of renewable energy co-ops have now created a central office in the German capital. The DGRV is an umbrella organization representing citizen cooperatives in all sectors. In a press release (in German) it explains that the new headquarters will **represent the more than 700 energy co-ops that now exist – consisting of some 150,000 members.**”



### Applications:

July 29, 2014. **Biomethane-powered chargers for electric vehicles: Great possibility to team up.** [How Garbage, Cows, and Flushing are About to Expand Supercharger Coverage for Tesla Motors.](#)

“How will it work? The U.S. Environmental Protection Agency (EPA) will now recognize natural gas fuels sourced from biogas (also called biomethane or renewable natural gas) captured at landfills, farms, and wastewater treatment plants as advanced biofuels. That won't help Tesla Motors, but the agency also ruled that electricity created from combusting biomethane and used to power electric vehicles qualifies for the same advanced biofuel incentives (electric

vehicles are covered under the Renewable Fuel Standard, too). The new rule could possibly bring the Tesla Supercharger network to your town by the end of the decade. Here's how. **Why not leverage America's vast biogas reserves to bring a Supercharger to every town or municipality?** It's still much too early to say whether Tesla Motors will join forces with companies such as Waste Management, Veolia Environment, and large farming operations to expand Supercharger coverage, but the partnership potential makes almost too much sense. What's the potential for biomethane? The [American Biogas Council estimates](#) that roughly 540 landfills (22% of capacity), over 2,000 wastewater treatment plants (63%), and more than 6,300 farms (97%) across the nation have the potential to economically capture and use biomethane but aren't doing so today. In addition, thousands of sites could economically produce biogas from food waste or send it to an anaerobic digester at the local wastewater treatment plant to boost its output.”

July 24, 2014. **Could food waste power our cities?** “There have been biogas plants in the US for many decades, mostly at wastewater treatment facilities. What’s new is a focus on using these systems to process some of the 133 billion pounds of food wasted in America each year.”

July 21, 2014. Running on rubbish: **Supermarket comes off national grid to be powered by food waste alone.** “Industry partners Biffa and Sainsbury’s are today celebrating an innovative facility that will allow Sainsbury’s Cannock store to run on power generated solely from the supermarket’s own food waste.”

July 14, 2014. **El automóvil a biogás ¿motor de la transición energética en Francia?** “La carrera para la gasificación está abierta. **El gas natural vehicular (GNV) es una alternativa creíble al gasóleo. Podría reemplazar el diesel para el año 2050**”

July 12, 2014. United Nations Development: [From biogas to ice cream, Bhutan's newest 'cool thing'](#). “The Bhutanese village of Singyegang, with 450 inhabitants, is home to hot and humid summers. It’s the kind of weather that calls for refreshments -- and ice cream tops the list. Until now, it was a “foreign” treat, mainly imported from neighboring India. But one small group of farmers saw an opportunity and took a risk, turning a biogas project into something “cooler”: Bhutan’s very first ice cream factory.”

#### context:

July 2, 2014. **Biogas projects in Nepal are saving nearly 400,000 trees a year from deforestation. Nepal wins hearts and minds with biogas boom** by Om Astha Rai, Climate News Network. “Villagers in Nepal are increasingly being persuaded that small biogas installations using human waste to provide fuel are not only desirable but are also helping to reduce deforestation of the Himalayas and carbon emissions.”

July 2, 2014. **Building world’s first ferry to operate on biogas.** “Samsø Færøgen, a new LNG (Liquefied Natural Gas) powered double-ended passenger car ferry. The 100m ferry is being built on behalf of Danish proprietor, Samsø Municipality. Initially LNG-fuelled, the vessel is expected to become the world’s first ferry to operate on locally supplied biogas. The ferry is due to enter service in September 2014 on domestic routes between the island of Samsø and Hou on the Danish mainland.”

### Biogas Plant Efficiency

July 25, 2014. **Improving Biogas Plant Efficiency – Why Ferrous Chloride Not Ferric Chloride is Best.** “About improving biogas plant efficiency and process stability, by simply using an additive (adding a small dose of a chemical each day). Hydrogen Sulphide (H<sub>2</sub>S) even in small quantities, and high ammonia (NH<sub>3</sub>) both in the digester liquor and in trace quantities in biogas, are high in the list of concerns for most biogas plant operators. It is self-evident that there are big advantages to avoiding the build-up of H<sub>2</sub>S and NH<sub>3</sub>. The place to do that is at the source of the problem, in the digester – rather than clean-up the gas-flow to remove these substances from the biogas before it

reaches gas engines or other corrosion-sensitive equipment. Both H<sub>2</sub>S and NH<sub>3</sub> can inhibit the growth of the organisms that produce biogas.”

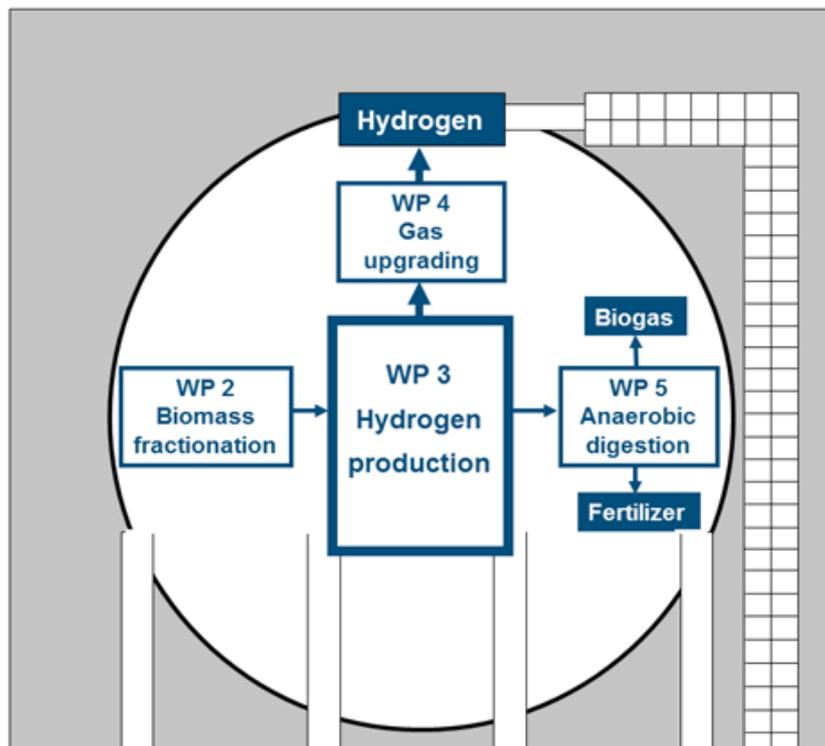
**context:**

May 2, 2014. **Cremona, rischio diossina nei biodigestori?** “Nel cremonese è arrivata la prima autorizzazione da parte della Provincia ad un impianto a biogas per l’uso di cloruro ferroso nei biodigestori come “integratore biologico”. Ma l’ingegner Petroni di Bologna mette in guardia su una reazione chimica che può avvenire tra il cloruro ferroso con l’acido solfidrico”

February 21, 2014. **Biogas Desulphurisation System Reduces Costs at Waste Management.** “The Allison Engineering AWITE Biogas analyser which is supplied with its own air compressor and uses a combination of PID and Fuzzy Logic control to automate the injection of small quantities of air (0.5 to 1%) into the gas stream within the digester. The oxygen converts the hydrogen sulphide (HS) to elemental sulphur and water, a process which is completely automatic and does not require any operator input and so eliminates additional operational and maintenance costs. The HS concentration in biogas from anaerobic digestion (AD) can be up to 2,000 to 3,000 ppm. When the biogas is burnt in a CHP plant to generate electricity the HS breaks down, producing a weak sulphuric acid that can cause corrosion within the engine, leading to increased maintenance costs and downtime. For this reason many engine manufacturers stipulate a maximum HS concentration in their warranties. One of the most common ways of reducing the HS concentration is to inject iron chloride into the digester slurry or feed substrate, converting the HS into iron sulphide particles. Whilst this is very effective it requires additional process control functions with dedicated pumps and storage vessels and therefore has associated on-going operational costs. James Hladkij, the AD Technician at the Cory Waste Management site in Weston-super-Mare said: "We need to protect our CHP plant operations and maintaining HS concentration levels to less than 300 ppm is essential part of this process. The Uniflare system has enabled us to achieve levels of less than 100 ppm and at minimal operational cost."

### Biogas Research

July 28, 2014. **Nothing Gets Lost: The Power of Biomass.** Magazine CORDIS. Hy-Time project aims to **integrate biohydrogen and biogas technologies for sustainable H<sub>2</sub> production** with low energy demands. “What is new or innovative about this approach to hydrogen production? In natural anaerobic digestion systems, biomass is converted to biogas (CH<sub>4</sub> and CO<sub>2</sub>) by a consortium of micro-organisms working together. These micro-organisms produce organic acids and hydrogen, but the latter is immediately consumed by hydrogenotrophic bacteria which convert it into methane or acetic acid. These bacteria are our enemies, and the **HyTIME innovation consists in working with extreme thermophilic bacteria — which have superior yield — to make their life miserable and produce more hydrogen.**”



July 21, 2014. **Sewage treatment contributes to antibiotic resistance**. “It seems that with so many different types of bacteria coming together in sewage plants we could be giving them a perfect opportunity to swap genes that confer resistance, helping them live. This means antibiotic-resistant bacteria may be evolving much faster than they would in isolation. “The way sewage plants mix up different types of waste means they're hotspots, helping bacteria share genes that mean they can deactivate or disarm antibiotics that would normally kill them,” says Professor Elizabeth Wellington of the University of Warwick, who led the study. A greater volume of antibiotics is used in farming than in anything else. Huge amounts are used globally, mainly for treating infections in food animals but also to promote growth,” Wellington says. **“We've completely underestimated the role waste treatment processes play in antibiotic resistance,”** says Wellington. “Stricter regulations and higher levels of treatment are needed if we are to halt the rise in antibiotic resistance in the environment,” write the authors in their report. **“We're now looking at ways to get wastewater treatment plant effluent cleaner,”** says Wellington. In 2013, Chief Medical Officer for England, Prof Dame Sally Davies, described the threat of antimicrobial resistance as a ticking time bomb, adding that it's as much of a threat as terrorism. “We're on the brink of Armageddon and this is just contributing to it,” Wellington says. **“Antibiotics could just stop working and we could all be colonised by antibiotic-resistant bacteria.”**

July 4, 2014. **Algas y chumberas, óptima alianza para producir biogás**. “Producción de biogás a partir de biomasa de la microalga *Scenedesmus sp.* procedente de diferentes procesos, este es el título completo de la tesis doctoral de Juan Luis Ramos. Según informe el Ciemat, “la investigación ha permitido determinar el potencial que existe para la **aplicación de la digestión anaerobia como método de tratamiento de residuos orgánicos generados en biorrefinerías de microalgas**, produciendo energía renovable y cerrando el ciclo de nutrientes para el cultivo de nueva biomasa mediante el reciclaje del digerido y del dióxido de carbono”. Destacan también el potencial de la codigestión anaerobia de *Scenedesmus sp* y chumberas para la producción de biogás”.

July 3, 2014. **New technology to demonstrate cost-effective biogas** use by Katie Fletcher. “One step closer in commercializing a combustion system that can switch between biogas, propane and natural gas in real time. This novel development was created out of a need in the biogas sector. One of the barriers of using biogas in the market is that there isn't a consistent supply or quality. The technology's real time switching **allows the system to continuously operate alleviating the inconsistent supply of biogas**. The project is going to kick off with a meeting in September of 2014 with the first part of the project being the development of a demonstration plant. The various phases of the project are expected to culminate in October of 2017 with the implementation of a technology transfer plant.”

July 2, 2014. **Le gaz vert, une alternative au gaz naturel?** par Lydia Ben Ytzhak, CNRS Le Journal. “Dans un contexte mondial de transition énergétique et d'épuisement des réserves de combustibles fossiles, produire du gaz à partir de la biomasse ou des énergies renouvelables présente l'intérêt majeur de limiter les émissions de gaz à effet de serre. En effet, la production de biogaz recycle un carbone déjà présent et disponible dans notre environnement immédiat, alors que l'extraction et la combustion du méthane fossile – le gaz naturel – injecte dans l'atmosphère du carbone piégé sous terre depuis des millions d'années, ce qui va à l'encontre d'une maîtrise des émissions. Sans compter l'indépendance énergétique que permet un gaz renouvelable. **Plusieurs recherches et expérimentations sont actuellement en cours en France pour développer et améliorer l'exploitation des gaz non fossiles. L'hythane, biogaz optimal?**”