



Faster global warming

January 30, 2017. **Les onades de calor a Catalunya provocaran vuit vegades més morts a mitjans de segle.** “Així, si ara hi ha uns 300 morts anuals, cap al 2050 es preveuen unes 2.500 morts cada any, a causa de l'increment i intensitat de les onades de calor. És una de les principals conclusions del Tercer Informe sobre el Canvi Climàtic a Catalunya (TICCC), que preveu un increment de la temperatura mitjana de fins a 1,4°C, i una reducció de prop del 10% de la pluviometria. Això, entre altres conseqüències, a més de la salut, podria perjudicar la producció agroalimentària, el turisme i l'abastiment d'aigua.”

January 26, 2017. **ExxonMobil names climate scientist to its board.** “Oil giant ExxonMobil, long criticized over its stance on climate change and production of fossil fuels, has appointed a leading climate scientist to its board of directors. Susan Avery, an atmospheric physicist and former president of the famed Woods Hole Oceanographic Institution, will join the board of the petroleum giant on February 1. Avery's research priorities have included climate variability, and she has said that “Clearly climate science is telling us (to) get off fossil fuels as much as possible.” ExxonMobil remains a primary target of environmentalists for its contribution to fossil fuel consumption. It was the subject of 2015 investigative reports by environmental news nonprofit Inside Climate News and others, charging it "manufactured doubt" about climate science even while contradicted by research by its own climate scientists. ExxonMobil has dismissed the reports as biased, but faces government investigations over the controversy. Earlier this month, a Massachusetts court ruled the oil giant must turn over 40 years of documents on climate change, in a win for Massachusetts Attorney General Maura Healey, who has described the probe as a fraud investigation.”

January 25, 2016. **Climate change, impacts and vulnerability in Europe 2016** by European Environment Agency. “European land temperatures in the decade 2006–2015 were around 1.5 °C warmer than the pre-industrial level, and they are projected to continue increasing by more than the global average temperature increase (...) the probability of occurrence of various recent heat waves and other damaging extreme weather and climate events in Europe has substantially increased as a consequence of anthropogenic climate change (...) Europe has experienced several extreme summer heat waves since 2003, which have led to high mortality and economic impacts. The vast majority of glaciers in the European glacial regions are in retreat. Glaciers in the European Alps have lost approximately half of their volume since 1900, with clear acceleration since the 1980s. Glacier retreat affects freshwater supply and run-off regimes, river navigation, irrigation and power generation and may lead to natural hazards and damage to infrastructure (...) Without further action, climate change is projected to increase the magnitude and frequency of flood events in large parts of Europe (...) The severity and frequency of droughts appear to have increased in parts of Europe, in particular in southern Europe and south-eastern Europe”

January 24, 2017. **In a fiery speech, California Gov. Jerry Brown defends climate action and attacks ‘alternative facts’** By Chelsea Harvey, The Washington Post. “The recent election and inauguration of a new president has shown deep divisions across America,” Brown said in his speech. “While no one knows what the new leaders will actually do, there are signs that are disturbing. We’ve seen the bold assertion of ‘alternative facts,’ whatever those are. We’ve heard the blatant attacks on science (...) Our state is known the world over for actions we’ve taken to

encourage renewable energy and combat climate change,” Brown said. “Whatever they do in Washington, they can’t change the facts, and these are the facts: The climate is changing.”

January 17, 2017. **Los agricultores españoles en jaque por el cambio climático** por Rodrigo Salamanca, El Mundo. “El desplazamiento a zonas más frías para el cultivo empieza a ser una medida mitigadora frente al efecto invernadero. Las consecuencias del efecto invernadero están afectando a nivel mundial. Y el sector primario lo está notando. Una de estas consecuencias que lastra a los cultivos de vinos es la escasez de precipitaciones y el aumento de las temperaturas (...) También olivos, alcachofas, encinas y alcornoques están desfalleciendo.”

January 18, 2017. **2016 warmest year on record globally, NASA and NOAA data show**. “Earth's 2016 surface temperatures were the warmest since modern recordkeeping began in 1880, according to independent analyses by NASA and NOAA. This makes 2016 the third year in a row to set a new record for global average surface temperatures.”

January 11, 2017. **Arctic sea ice collapse is happening before our eyes** by Rafi Letzter, Business Insider. “As 2016 wound down and winter kicked into gear in the Northern Hemisphere, an ominous trend began in the Arctic: sea ice dipped to levels far below normal. Less of the northern ocean was covered in ice than scientists had ever seen in the satellite record. The trend began in earnest back in November, when hot air in the far north began cooking the oceans, curbing the formation of ice. Growth sped up a bit in December, so the gap between what satellites saw and what’s normal shrank. But the ice cap was still missing enough ice to cover 23 US states, a record-breaking total. Now it’s 2017. New year, same story. The Arctic sea ice is far behind where it should be, and behind anything scientists have ever seen in the Arctic.”

January 10, 2017. **Research Highlight: Climate Model Suggests Collapse of Atlantic Circulation Is Possible**. “Primary circulation pattern in the Atlantic is assumed to be stable by most scientists, but new simulation suggests collapse could happen if atmospheric greenhouse gases continue to increase. The idea of climate change causing a major ocean circulation pattern in the Atlantic Ocean to collapse with catastrophic effects has been the subject of doomsday thrillers in the movies, but in climate forecasts, it is mostly regarded as an extreme longshot. Now a new paper based on analysis done at a group of research centers including Scripps Institution of Oceanography at the University of California San Diego shows that climate models may be drastically underestimating that possibility.”

January 9, 2017. **Climate Disasters Cost U.S. \$46 Billion as Flooding Leads List** by Brian Sullivan, Bloomberg. “ Across 48 states, 2016 was second-warmest year on record. Nation has ‘left our climate of the past,’ agency chief says.”

January 4, 2017. **New study confirms NOAA finding of faster global warming** by John Abraham, The Guardian. “Thomas Karl and colleagues were harassed by Republicans for publishing inconvenient science. [A new study](#) proves them right. A new study has shown that a [2015 NOAA paper](#) finding that the Earth is warming more rapidly than previously thought was correct.”

Winter 2017. **Q&A: How Climate Change Hurts Health**. Interview with Aaron (Ari) Bernstein, MPH '09, who has studied the health effects of climate change from many angles as associate director of the Center for Health and the Global Environment at the Harvard Chan School. “Reducing greenhouse gases in the Earth’s atmosphere may be the greatest public health intervention ever.”

December 21, 2016. **Contribution of Anaerobic Digestion and Biogas towards achieving the UN Sustainable Development Goals** by World Biogas Association. “According to the UN

Environment Programme (UNEP), current commitments made by governments are only sufficient to keep warming below 3°C and, therefore, urgent action is required if we are to avoid dangerous levels of global warming. Anaerobic digestion and biogas technologies make a significant contribution to these targets and goals, not only through generating ultra-low carbon energy and biofertiliser, but also through the reduction of harmful methane emissions from food and farming wastes, providing energy and food security, improving waste management and sanitation, and reducing poverty and hunger. This paper presents the evidence to support the need for wide adoption of anaerobic digestion and biogas technologies in order to meet the UNFCCC COP 21 Commitments and UN Sustainable Development Goals. With the ability to reduce global GHG emissions alone by close to 20%, the potential of these technologies to contribute to a sustainable and carbon neutral future is immense.”

context:

July 11, 2014. [UN: Pathways to Deep Decarbonization. How to cut carbon emissions in order to prevent dangerous climate change. Biogas & Nanotechnology role.](#)

Accelerating the global energy transformation

January 30, 2017. [Trump 'will definitely pull out of Paris climate change deal'](#) by Tom Batchelor, Independent. “Warning comes from the former head of the US President's transition team at the Environmental Protection Agency (...) The Paris agreement, successor to the Kyoto Protocols, aims to “stabilise greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.”

context:

January 20, 2017. [Decoding Trump's White House Energy Plan](#) by Bobby Magill By Bobby Magill, Climate Central. “The White House's new energy plan repackages Trump's campaign promises to reignite America's declining coal industry, kill the Obama administration's Climate Action Plan and exploit all of America's fossil fuel reserves to achieve energy independence — an idea that ignores that America's oil and gas is part of a truly global fossil fuels market.”

January 19, 2017. [Will the World be Safer or More Dangerous Under a Trump Presidency?](#) by John Robb, Global Guerrillas. “Since World War 2, US foreign policy has been completely dominated by national security policy. In fact, it's hard to imagine a US policy that doesn't view the world through a militaristic, cold war lens. This means that ALL other aspects of foreign policy are conducted in support of (slaved to) national security policy. In particular, US trade policy is configured to promote the economic growth of allied nations (originally to fight the cold war) even if this trade relationships damages US economic performance. Trump inverts that policy relationship. In Trump's post cold war world, US foreign policy will be dominated by trade policy. Even national security policy will be subservient to trade policy. If trade policy is dominant, we'll see China, Mexico and the EU (Germany) become competitors. Russia, in contrast will become an ally since it doesn't pose a trade threat. National security under this regime will be used to reinforce and grow positive trade relationships.”

November 9, 2016. [Trump Wins: Welcome to the new world](#) by Anmol Saxena, The BRICS Post. “Modern history will record November 8, 2016 as the day when the United States of America officially decided to vote for a global retreat – from the heady rhetoric of ‘Let's make the world a better place’ to “Let's make America great again”. Americans have voted for building a wall to protect what they have, against the dream of global dominance. This surely marks the end of the uni-polar world as we know it.”

November 2016. [Global Energy Transition: Paris Agreement entered into force.](#)

January 30, 2017. [Economía circular: La CE pide más prevención, reciclado y biogás y menos incineración de residuos](#) por Javier Rico, Energías Renovables. “La Comisión Europea presentó un [informe](#) sobre los resultados y avances de las principales iniciativas asociadas a su plan de acción de 2015 sobre la economía circular, incluida una serie de orientaciones a los Estados

miembros sobre la transformación de residuos en energía (...) El biogás se incluye como unas de las tecnologías a potenciar, gracias especialmente a su transformación en biometano (...) “Es necesario redefinir el papel de la incineración de residuos –prosigue el comunicado– para garantizar que no se obstaculicen los aumentos en el reciclado y la reutilización”. Acto seguido añade que “se debe prestar más atención a procesos como la digestión anaerobia de los residuos biodegradables, en los que el reciclado de materiales se combina con la recuperación de energía” (...) Aparte de exigir también niveles superiores de eficiencia energética para las instalaciones que trabajan con cogeneración, insiste en la importancia de la digestión anaerobia con transformación del biogás en biometano para su posterior distribución y uso, tanto en las redes de gas como en combustible para el transporte. El comunicado de la CE muestra un ejemplo del poder de reducción de emisiones: “desviar una tonelada de residuos biodegradables de un vertedero hacia la digestión anaerobia para producir biogás y fertilizantes puede evitar hasta dos toneladas de emisiones de CO2 equivalente”. Desde centros de investigación españoles hasta el programa Horizonte 2020 de la UE apuestan por este potencial del biogás dentro de la economía circular.”

January 29, 2017. **World’s largest oil company considers investing \$5bn in renewable energy.** “Saudi Aramco, the world’s largest oil company, is considering as much as \$5 billion of investments in renewable energy firms as part of plans to diversify from crude production (...) The energy company was seeking to bring foreign expertise in renewable energy into the kingdom, sources said, adding that first investments under the plan could occur this year. Saudi Arabia is planning to produce 10 gigawatts of power from renewable energy sources including solar, wind and nuclear by 2023 and transform Aramco into a diversified energy company. The kingdom also plans to develop a renewable energy research and manufacturing industry as part of an economic transformation plan announced by Deputy Crown Prince Mohammed bin Salman in April.”

January 28, 2017. **La directora de l’Institut Català de l’Energia defensa impulsar la transició energètica tot i les traves de Madrid.** “Assumpta Farran, directora de l’Institut Català de l’Energia (ICAEN), va animar a dissenyar una estratègia per avançar en la transició energètica, tot i que el govern central continuï «apalancat en un model que és antic», que preval «el reconeixement dels costos per a gent que ja els ha cobrat deu vegades». Un model «centralitzat, de cinc grans empreses». Farran va defensar, en contrapartida, la transició energètica, que posa èmfasi en les renovables i la implicació ciutadana en la generació, la comercialització i la cessió energètica.”

January 27, 2017. **« La transition énergétique passe par la décentralisation »** Du 24 au 26 janvier, les Assises européennes de la transition énergétique ont eu lieu à Bordeaux. L’occasion pour les élus locaux d’appeler à plus de décentralisation et d’expérimentation (...) L’évènement a surtout été l’occasion pour les élus locaux de s’exprimer sur le rôle des collectivités locales dans la transition énergétique. Le président de la Région hôte s’est montré très explicite : « la transition énergétique passe d’abord par les territoires. La centralisation française est mortifère pour notre économie », a clamé Alain Rousset. Et le président de Nouvelle Aquitaine d’insister : « Tout le monde se rend compte que le secteur des énergies renouvelables va apporter énormément d’emplois. Mais il y a un problème d’organisation centralisée. » Sans oublier les questions de financement, il a aussi pointé « un obstacle purement culturel » en France : l’acceptation du changement, qui serait facilité selon Alain Rousset par la décentralisation.”

January 18, 2017. **Barack Obama transfers \$500m to Green Climate Fund in attempt to protect Paris deal** by Michael Slezak, The Guardian. “New instalment leaves \$2bn owing, with Donald Trump expected to cease any further payments. The fund was a key aspect of the Paris agreement signed in 2015, which aims to keep global warming “well below” 2C and aspires to keep warming to 1.5C. Established in 2010, it is financed by wealthy countries and used to assist developing countries with adaptation and mitigation. It was widely seen as a key measure to bring both rich and poor countries to the negotiating table.”

January 17, 2017. **The irreversible momentum of clean energy** by Barack Obama. “President Barack Obama discusses the long-term potential of renewable energies and sees the global energy transition as irreversible. Now more than ever, the world needs to embrace the opportunity of clean energy and cooperate on its climate goals.”

January 17, 2017. **China paraliza 104 plantas de carbón que estaba construyendo y eso es una noticia sensacional para el medioambiente** por Javier Jiménez, Xataka. “Para que nos hagamos una idea, la capacidad total de producción de ese centenar de proyectos hubiera rondado los 120 gigavatios (equivalente a un tercio de la producción de carbón de Estados Unidos). Está claro que es un movimiento muy potente contra el cambio climático. Y es una jugada a largo plazo. Porque China está apostando muy fuerte por liderar la transición energética y conseguir que escenas como las de Pekín asaltado por la bruma no se vuelvan a repetir.”

January 17, 2017. **Renewable Energy May Be Cheaper than Fossil Fuels** by Henry Litman, Clean Energy Finance Forum. “Carbon Tracker Initiative has released a study that might surprise the general public. The global study, “End of the Load for Coal and Gas?,” found renewable energy is now more cost-effective than fossil fuels. These data conflict with conventional wisdom that coal and gas are the cheapest fuels available. The authors, Paul Dowling and Matt Gray, reached their conclusion by examining the assumptions behind levelized cost of energy (LCOE) calculations. They found that current assumptions regarding cost of capital, capacity factors, useful life, and carbon pricing are outdated. Gray said these assumptions lead people to believe that coal and gas are cheaper than renewables. “This [belief] is at best misguided and at worst misleading.”

January 16, 2017. **The Sleeping Giant Stirs: Russia Revs Up Renewable Tech** by Tina Casey, TriplePundit. “Russia has sufficient capacity to fulfill its needs through its traditional power sources. Russia’s First Deputy Energy Minister Mr. Alexey Teksler said, though, that in global terms the world is entering “a new period of energy, a new history of new energy. We see growth globally ... technology growth is driving the decision to develop renewable resources.” Although Russia does not need the additional capacity from renewables, the country’s policymakers have recognized that the global demand for renewable energy is accelerating, Mr. Teksler claimed. For countries with the expertise, that translates into new opportunities to develop and export renewable energy technology (...) “The world is changing rapidly. Today renewables should stop being seen as an “alternative,” should be developed side by side with traditional energy and become mainstream instead. The Russian Federation is a huge country with great technologic potential. Not only are renewables crucial in terms of supplying energy to isolated and remote areas of the country, but it is also extremely important for us to build up our own competencies in the area of ‘energy of the future,’ to develop and test technologies and equipment.”

January 15, 2017. **New IRENA Report Details How Renewables Can Decarbonise the Energy Sector and Improve the Lives of Billions.** “[REthinking Energy 2017: Accelerating the global energy transformation](#) released at seventh IRENA Assembly. Falling costs, driven by innovation in technology and policy, is spurring renewable energy deployment and with it a myriad of socioeconomic benefits, according to the new comprehensive publication released by the International Renewable Energy Agency (...) “Renewables are gaining ground by nearly every measure. Accelerating the pace of the energy transition and expanding its scope beyond the power sector will not only reduce carbon emissions, it will improve lives, create jobs, achieve development goals, and ensure a cleaner and more prosperous future,” said IRENA Director-General Adnan Z. Amin. The publication highlights how global investment in renewables has steadily grown for more than a decade, rising from less than USD 50 billion in 2004 to a record USD 305 billion in 2015. Despite this enormous growth, current investment and deployment levels are making headway to meet international carbon reduction targets. “As we advance deeper into a new energy paradigm, we need to pick-up the pace of our decarbonisation efforts. Policies and

regulations continue to remain crucial to this end and to develop the renewables market,” explained Mr. Amin. “We are seeing more and more countries hold auctions to deploy renewables, and as variable and distributed sources of renewables take on a greater role, regulators have implemented changes to enable grid integration at scale. Heating and cooling, and the potential of renewables for transport, are areas where future efforts are needed.”

January 13, 2017. **Le Syndicat des Énergies Renouvelables publie ce jour le livre blanc des énergies renouvelables et l'adresse aux candidats à l'élection présidentielle.** “A la veille de l’élection présidentielle, le Syndicat des énergies renouvelables (SER), qui regroupe l’ensemble des acteurs des énergies renouvelables en France, publie son livre blanc, fruit du travail collectif de tous ses adhérents. En préambule de son ouvrage intitulé « [Energies renouvelables : s’inscrire dans l’élan mondial](#) », le SER rappelle la révolution économique mondiale que sont en train d’accomplir les énergies renouvelables. Il souligne les mutations profondes qu’engendre cette révolution qui fait émerger de nouvelles formes de gouvernance, du consommateur acteur à l’Union Européenne (...) Lever les freins à la croissance de la filière biogaz. L’essor de la filière biogaz passera par la complémentarité des diverses utilisations qui peuvent en être faites. L’accent devra être mis sur l’élaboration de cadres de soutien à la production énergétique adaptés, clairs et stables mais aussi sur l’accompagnement de projets de qualité en phase d’émergence, essentiels à la structuration d’une filière industrielle dans notre pays.”

January 4, 2017. **Clean energy: The challenge of achieving a ‘just transition’ for workers** by Sophie Yeo, CarbonBrief. “Tackling climate change is good for the economy, good for business and good for people. This is the narrative often pushed out by campaigners, researchers and governments around the world. But while measures to curb emissions and reduce the impacts of rising temperatures will be good for the many, the few who work in industries affected by climate policies risk losing their livelihoods as the economy leans increasingly upon renewable energy. Around the world, there is a growing movement demanding a “just transition” for the workforce, so that workers are not left in the cold as fossil fuels become consigned to the past.”

“Enernet: Energy is the new new internet”

February 14-15, 2017. **Global Summit on Blockchain in the Energy Sector.** “The energy market is at a turning point. Leading experts agree that blockchain technology has the potential to shift the whole industry. Decentralised digital platforms will change the way people buy and sell energy. Blockchain technology enables us to build verifiable, secure peer-to-peer structures and it conciliates the use of data and privacy. EventHorizon is the first global summit on blockchain technology in the energy sector, uniting energy experts, utilities, service providers, and regulators, with blockchain technology companies and start-ups. Blockchain is a breakthrough innovation, changing the way business is done, and making a speedy headway from banking to energy. In Vienna, the global energy industry will have the unique prospect to understand blockchain and how it can be applied to significantly improve current energy operations – and create new opportunities. Leading blockchain experts, Dr. Gavin Wood and Vitalik Buterin of Ethcore and Ethereum, will explain the inner workings of blockchain and its relevance to wider economy. Grid Singularity (GSy), blockchain development company based in Vienna, has partnered with the Ethcore team to bring about the technology evolution to the energy sector. Grid Singularity is building the core platform for a range of energy applications, and gathering all the energy blockchain start-ups developing use cases at the Vienna event – from Lo3 that showcased the first blockchain-based microgrid in New York to Bankymoon providing blockchain-powered smart meters to schools in

Africa, as well as SolarCoin, Daisee, and many others. This is attracting the principal venture capital firms and other investors to the EventHorizon, in addition to utilities, regulators and NGOs such as Greenpeace. EventHorizon will feature a series of panels to present their perspectives, creating a dialogue of all the relevant stakeholders as a first step to building a consensus on norms and standards to govern the use of blockchain in energy. It is therefore symbolic that EventHorizon will also be the launch of the EnergyWeb Foundation, established by the renowned Rocky Mountain Institute and Grid Singularity. EventHorizon is officially supported by the Austrian Ministry of Transport, Innovation and Technology and the City of Vienna, and industry leaders, Vattenfall and Energie Steiermark.”

January 22, 2017. **Energy is the new new internet** by Brian Lakamp, TechCrunch. “If you’re not paying attention to what’s going on in energy, you should. We’ve seen this movie before. Spoiler alert: There’s massive economic opportunity ahead. How massive? Imagine standing in 1992, knowing that Google, Akamai, Netflix, Facebook, Amazon, eBay, BuzzFeed and Uber lay ahead. This time it’s the “enernet,” not the internet, that will transform our lives. The story is the same, though the players have changed. Here’s the tee up. Across the country, incumbent network providers operate highly centralized networks in their respective cities. Then, scrappy local outfits start serving the market with innovative, distributed technology. These startups create competition, and a new network emerges atop the legacy network (...) This time, it’s the enernet. Enernet. Noun. A dynamic, distributed, redundant and multi-participant energy network built around clean energy generation, storage and delivery and serving as the foundation for smart cities.”

January 19, 2017. **Biogas is connected to the IoT (Internet of things) to offer new revenue models for Swedish farmers!** “Nowadays, converting a car to be able to fuel it with biogas can be easily done and costs about 1,000 euro –an investment that can be recuperated relatively quickly, as the cost of biogas is about 20% cheaper than petrol. This can be up to 50% cheaper for the end-users who buy biogas directly from the farmer. In order to be used as vehicle fuel, biogas must be upgraded into biomethane, and is often referenced as compressed biogas or CBG. The conclusion is that it became important to offer cost-effective biogas upgrading modules that are available to all, even small farms. Farmers who invest in their own biogas plant, and upgrade their biogas to biomethane, could make huge profits if they could be reachable for their end-users. Even if they will not sell the biomethane, they will be able to run all their private means of transport, such as tractors, cars, or busses with biogas, which saves a lot of money for the individual farm. NeoZeo, in cooperation with Ayond’s IoT department are developing the app for biogas/biomethane producing farmers, which will show to anyone who wants to refuel their car with biogas the directions to the nearest biomethane selling farm, as well as offer a safe and easy payment system for a seamless car-fueling experience. NeoZeo’s biogas upgrading module together with its newly developed app will contribute to the Swedish government's ambitious efforts to achieve fossil-free transport by 2030.”

context:

November 2016. [Energiewende 2.0: Blockchain in the energy transition](#)

March 2016. **Biogas and the digital disruption into energy**

The emerging global biogas market

January 17, 2017. **Global biogas market to increase at 6.5% CAGR** by Francesca Brindle, Energy Global. “Global demand for biogas has witnessed a spike in demand, owing to mounting concerns over depleting fossil reserves and environmental impact of conventional fuels. According

to Future Market Insights, global biogas market revenues totalled nearly US\$24.5 billion in 2015. During the forecast period 2016 - 2026, global biogas revenues are estimated to reach US\$48 761.2 million, growing at a steady 6.5% CAGR. Between 2016 and 2026, the global biogas revenues are projected to double, with Asia-Pacific (APAC) and Latin America among the key regions fuelling demand.”

ASIA PACIFIC

January 25, 2017. **Biogas Plant Market - Global Industry Analysis, Size, Share, Growth Trends and Forecast 2016 - 2022** by Transparency Market Research. “Asia Pacific dominated the global biogas plant market in terms of biogas plant volume, in 2015. It is expected to expand at a CAGR of 7.8% from 2016 to 2022. China, India, Japan, Australia, and ASEAN countries are some of the major countries in the Asia Pacific biogas plant market. Asia Pacific biogas plant market was dominated by biogas plants utilizing agricultural waste, food and beverage processing residue, and sewage sludge as the feedstocks. Rising investments for waste management coupled with growing energy imports have compelled various countries such as China and India to focus on alternate sources of energy such as biogas.”

January 18, 2017. **China eyes biomass energy as to replace coal**. “China plans to expand the upgrade of biomass energy in the next 5 years as to reduce coal consumption and improve the air quality. The National Energy Administration announced on the 5th of December that the country aims to achieve the target of using biomass energy equivalent of 580 million of tons of coal yearly by 2020, as reported by China Daily. As the administration's 2016-2020 biomass energy development plan shows, the biomass energy use will be more commercialized and industrialized by 2020. At the moment, China produces biomass energy that is similar to approximately 460 million tons of coal annually. The energy is used mostly for biogas, biomass power generation and biomass heating, but the great amount of biomass is not yet used because the proper technology isn't ready for it.”

January 14, 2017. **India: How An Environmental Biotechnologist is Turning Waste Into Wealth** by Aashima Dogra, The Wire. “With the help of a government grant, Vanita Prasad, a scientist-entrepreneur from Baroda, is developing an innovative solution to the mammoth problem of waste management in India (...) Prasad's goal is to fulfill the country's urgent need to put its waste to use, specifically convert it to energy. According to a report for Energy Next, currently, only 154 MW of energy in India is being generated from industrial and urban wastes in a year. The potential, however, is 4GW-6GW, which is enough to power two cities like Delhi (...) Prasad describes her company's first marketable product – a dry granulated mixture of 56 carefully chosen microbe – as a “software update” of the existing, yet redundant, anaerobic bioreactors in the country. This ‘software’ is many steps ahead of the currently used ‘flocculant sludge’ or a colloidal mix of bacteria from cow dung and other sources. “There are lots of waste treatment anaerobic plants that are not working optimally or not working at all,” she added. “Even if you have planned for 75% waste to be degraded by the microbes, only 45 or 50% do. Slowly it became a problem and that's how these bioreactors started to fail. Naturally, in India, people don't want to go ahead with this technology called UASB (Upflow anaerobic sludge blanket). If the UASB unit is not working, the whole Effluent Treatment Plant gets choked up. Now even environment consultants don't want to incorporate it.”

January 26, 2017. **Hokkaido Japan: Agricultural waste to biogas to biomethane to hydrogen fuel for farm vehicles**. “As part of a consortium, Air Products APD took part in the inaugural ceremony of the Shikaoi Hydrogen Farm on Jan 24. The farm is a hydrogen production supply facility derived from livestock biomass waste, located in Hokkaido, Japan (...) The Shikaoi Hydrogen Farm uses agricultural wastes to supply raw biogas. This product is further upgraded to

supply purified biomethane. Biomethane is used as a feedstock to make renewable hydrogen which generates heat, power and vehicle fuel. This is the first facility in Japan to use agricultural wastes to manufacture hydrogen. The Shikaoui Hydrogen Farm is a five-year business project for low-carbon hydrogen technology. The project demonstrates an integrated hydrogen energy-based supply chain. Renewable hydrogen is used as a source of energy and fuel by the local livestock farmers and neighboring facilities. Hokkaido's first hydrogen-vehicle fueling station, installed at the Farm, delivers fuel to vehicles and forklifts.”

January 16, 2017. **Takuma has received an order for the construction of a biogas and WtE plant in Japan.** “In 2013, Takuma was the first company in Japan to deliver a combined system that integrates a biogas recovery plant with a stoker-type incinerator to a municipality. It is now possible to have high-efficiency power generation and energy recovery with even small-scale facilities which have difficulty producing power.”

January 19, 2017. **Quelles perspectives pour la filière du biogaz en Australie ?** par siapartners. “Tandis que le biogaz commence à s’imposer comme un vecteur incontournable de la transition énergétique, l’industrie n’en est qu’à ses prémices en Australie. La production de biogaz y a connu une croissance très importante entre 2007 et 2014, mais elle ne parvient pas à décoller véritablement, notamment à cause du manque d’initiatives gouvernementales efficaces, ce qui freine les financements et l’importation de nouvelles technologies. Malgré ces freins importants, les projets de biogaz australiens se multiplient, notamment au sein de la filière agricole et de l’industrie agro-alimentaire. L’enjeu pour l’Australie est donc de parvenir à instaurer des aides financières ainsi qu’une législation unique pour l’ensemble du territoire afin de favoriser l’adoption du biogaz à l’échelle nationale. Quels sont les leviers qui permettraient à l’Australie de développer la filière du biogaz pour faire décoller sa production ? ”

January 15, 2017. **City of Sydney unveils plan to turn household food scraps into biogas.** “Following Lord Mayor Clover Moore’s attendance at the C40 Cities Climate Leadership Group conference in Mexico in December, the council is exploring options for improving the power potential of waste (...) Work on the City’s waste strategy is under way, and a draft is expected to go to the council in mid-2017.”

January 24, 2017. **Indonesia: "Su-re.coffee" is promoting the biogas-coffee concept.** Enabling opportunities to diversify farmers' livelihoods: Blending adaptation and mitigation practice by Ibnu Budiman and Ivan Bobashev, Su-re.co. “Currently there are only limited biogas programmes in Indonesia. One of the programmes promoting biogas is called BIRU, which had 18,590 digesters over Indonesia during the period 2010-2015. Compared to the five million cow and pig farmers in Indonesia that have the potential to generate biogas, the BIRU digesters are still in very small number. Programmes such as BIRU also tend not to work very well because they are subsidized by the government, and people will not use the biogas from the government if it is not free. Even those people who already have a digester don’t always utilise it, as they prefer to use traditional methods for indoor cooking despite the health risk from the smoke produced from the fire wood. This lack of demand for biogas is one of the key obstacles for further expansion of this fuel. To generate demand for biogas stakeholders need to implement sustainable win-win solutions by finding and building relationships with industries that can potentially utilise the biogas. One option is the coffee industry, which has an advanced value chain that could be integrated with the biogas systems in Indonesia. Coffee is also the second biggest commodity in the world after oil and Indonesia was the world’s fourth-largest coffee producer and exporters in 2014 (...) However, one importantly base element is often forgotten, which is the coffee farmers who produce the coffee beans. The farmers are potential users of biogas in the coffee roasting process. The extensive demand for coffee presents an opportunity for farmers to play a significant role in promoting clean energy through a biogas-coffee concept, where biogas is used to power the roasting process.”

AMERICA

January 29, 2017. **Annual Review of Canadian Biogas Industry** by Jennifer Green, The Canadian Biogas Association. “The past year has been a time of considerable progress for the biogas industry. Several climate change initiatives have been brought forward by the federal and provincial governments, and advances have been made in respect to several specific renewable energy initiatives for which the Canadian Biogas Association has been a major player. ”

January 18, 2017. **Renewable biogas proposal continues greening of GM powertrain plant** by Paul Forsyth, Niagara This Week. “Use of landfill gas for energy could be a first in Ontario. It’s a sleek, state-of-the-art facility with gleaming robotics whirring about in rooms that are almost surgically clean, but in addition to cutting-edge technology the General Motors powertrain plant in St. Catharines is also being touted as a model of environmental sustainability. The latest investment in greening being proposed at the massive plant along the Welland Canal will be a renewable biogas cogeneration project that would utilize landfill gas to make the 2.08-million square-foot facility more energy efficient and reduce greenhouse gas emissions by a whopping 5,000 tonnes a year. The project, which could be up and running as early as 2018 if approvals are obtained in time and GM decides to forge ahead with it, is part of a major push by GM to dramatically reduce energy consumption, waste production and chemicals at its Canadian plants. ”

January 27, 2017. **Biogas Advances in the US** by Anna Simet and Katie Fletcher, Biomass Magazine. “While seemingly infantile when compared to other countries’ mature methane-derived energy sectors such as Germany, recent years have seen a development boom inspired by a variety factors, including the U.S. renewable fuel standard. The U.S. is currently home to over 2,200 operational biogas-producing sites, according to the American Biogas Council, including 171 on-farm digesters, 1,500 digesters at wastewater treatment plants—only 250 of which use the produced biogas—563 landfill-based energy projects (26 pipeline, 537 electricity), and there are well over 11,000 potential sites for new projects, prospects being eyed by both domestic and foreign developers. Different states and regions will soon or have recently become home to new projects that produce a variety of end products, from electricity to renewable natural gas, based on available feedstocks, incentives/funding and power prices, as well as building momentum to reduce waste and create renewable energy. The following is a roundup of some of the projects to come online or begin construction during the past year.”

January 17, 2017. **Biggest high performance membrane biogas upgrading plant in the world.** “North Carolina is going to have one of the largest renewable gas facility in the nation. It will produce natural gas out of swine waste and agricultural waste streams. This carbon neutral facility with DMT Clear Gas Solutions’ technology inside, is going to push North Carolina past the swine waste to energy goal. Biogas usually is produced through a digestion process (...) DMT is delivering a system that is unique to North America and the world, especially in this scale. Membrane based technology separates gas which is compressed and pressurized. The gas will flow through hollow fibers, resembling spaghetti’s (membranes) that act like miniature straws that sieve the methane (natural gas) from the CO₂ resulting in a system with a small footprint; almost 40% power and over 60% savings in greenhouse gas emissions compared to conventional technologies. This unique plant is going to upgrade 7400 SCFM raw biogas to natural gas quality and inject it into the gas grid. The high efficient technology cleans enough raw biogas gas to provide 30,000 house holds with natural gas for a year. The reduction in CO₂ takes about 26,700 cars off of the road and is similar to planting 3 million trees.”

January 13, 2017. **IKEA completes installation of its fourth biogas-powered fuel cell system, at its San Diego store.** “Slightly larger than the physical size of a commercial back-up generator, the 200-kw, biogas-powered project will produce approximately 1,665,101 kWh of electricity annually for the store, the equivalent of reducing 877 tons of carbon dioxide (CO₂) – equal to the emissions

of 185 cars or to providing electricity for 130 homes yearly. Combined with the 252-kW solar array installed atop the store in 2011, the fuel cell project will help generate a majority of the store's energy onsite."

January 1, 2017. **Los Angeles County WRRF Embraces Codigestion**. "Technology to produce food waste slurry key to project implementation - and helps generators comply with California organics recycling mandates. The Sanitation Districts' JWPCP in Carson (CA) treats an average of 280 million gallons/day of wastewater. One of the two anaerobic digestion tanks above has been used for codigestion, with the second serving as the control."

January 3, 2017. **Acciona & EDAR Atotonilco, la mayor planta de tratamiento de aguas residuales del mundo**. "permite depurar las aguas residuales de una población de 12.600.000 habitantes equivalentes de la Ciudad de México. ACCIONA Agua, formando parte del Consorcio Aguas Tratadas del Valle de México (ATVM) ha diseñado, construido y operará durante 22 años la Planta de Tratamiento de Aguas Residuales de Atotonilco. La mezcla de los fangos espesados más los procedentes de la Línea de Tratamiento Físico Químico se estabilizan mediante 30 digestores anaeróbicos de 13.000 m³ de capacidad unitaria. La Planta se completa con una red de gas para su aprovechamiento energético, con 7 gasómetros de membrana de 8.000 m³ de capacidad y 12 motogeneradores de 2,7 MW eléctricos."

January 27, 2017. **2016 foi o melhor ano da história do biogás no Brasil**. "Fonte cresceu mais de 30% em menos de um ano, projetos revolucionários saíram do papel e o energético entrou de vez na pauta do governo. O ano de 2016 foi um dos mais difíceis para o Brasil, retração da economia, juros em alta e fuga de investimentos. Entretanto, na contramão disso o setor do biogás cresceu e se destacou como boa opção de negócio e como fonte de energia capaz de garantir a segurança energética brasileira graças à ação incisiva da Associação Brasileira de Biogás e Biometano (ABiogás). Segundo dados da Agência Nacional de Energia Elétrica (Aneel), a produção do energético para geração de energia elétrica saltou de 0,0572% no início do ano para 0,0748% em dezembro, um acréscimo de 30,76%, chegando aos atuais 118,6 megawatts (MW) de energia instalada. De acordo com o presidente da ABiogás, Cícero Bley Jr., o biogás se consolida como uma commodity ambiental e tem todas as condições de ser utilizado no Brasil e atender a necessidade crescente de energia elétrica e de biocombustíveis. "A ABiogás movimentou intensamente o setor energia neste ano e uma das razões para isto foi o planejamento estratégico elaborado pelos seus associados e posto em prática pelo seu Conselho de Administração, que faz a entidade manter um pé firme na realidade econômica e social, construindo novos projetos de referência, dialogando com a indústria de base de máquinas e equipamentos e processos". Bley acrescenta que a associação não se descuidou de manter o outro pé nas ações junto ao setor de políticas e regulações, com agendas intensas nas agências reguladoras Aneel e ANP, no planejamento, EPE, no núcleo de políticas públicas e de estado, o Ministério de Minas e Energias, as Empresas estaduais de gás e distribuidoras de energia elétrica. A ABiogás teve uma intensa agenda com outros órgãos gestores do setor energético, como os ministérios das Cidades, do Desenvolvimento Agrário, do Meio Ambiente e Agricultura. Nesse período, importantes programas de referência internacional saíram do papel."

January 11, 2017. **Paraguay: Biogás, para paliar el déficit del servicio eléctrico local**. "La generación de energía a partir de la biomasa es una solución viable en países con gran potencial agrícola como Paraguay, según el Centro Internacional de Energías Renovables del Parque Tecnológico Itaipú (...) El biogás puede producirse a partir de diversos tipos de biomásas que se encuentran en Paraguay como residuos animales, residuos industriales de la producción de etanol, entre otros. Se ha demostrado en las 11 unidades de biogás instaladas el potencial de generación de energía, supervisadas por el Centro Internacional de Energía Renovable Biogás (CIBiogás) en Brasil."

January 26, 2017. **Argentina rompe récord con 59 proyectos de energía eólica solar biogás y biomasa**. “Argentina vuelve a ser noticia este año con la atracción de millonarias inversiones en el sector de energía, principalmente energía renovable no contaminante. El presidente Macri anunció la firma de nuevos contratos para la generación de energías renovables eólica, solar, de biogás y biomasa valorados en más de 1.200 millones de dólares (...) La firma de los contratos consolida la puesta en marcha del Programa RenovAr.”

EUROPE

January 23, 2017. **Biofuel congress in Berlin: Fuels of the Future**. Brakes release for biomethane as fuel by German Biogas Association (Fachverband Biogas). “The climate-friendly mobility of tomorrow depends on a mix of renewable energies, including biomethane. This is made clear by the congress "Fuels of the Future", which begins today in Berlin. "Biomethane is already an attractive option for clean and climate friendly passenger and freight transport in cities, but also in the countryside," explains Horst Seide, President of the Biogas Association. "The excellent emission values of CNG vehicles offer a rapid advantage for the environment and health," explains the farmer from Lower Saxony. Biomethane is produced nationwide in about 200 biogas plants, which process biogas and feed it into the natural gas network. The biomethane used for mobility is replenished in bus fleets, transporters and passenger cars. But they are currently "on sight"; It lacks the necessary long-term perspective. "As an important signal for investments in infrastructure and vehicles, the Bundestag must finally extend the tax reduction for biomethane and natural gas as a fuel expiring in 2018, otherwise the market will break away," warns Silk. The laxity of the policy to decide the tax reduction until 2024 has left its mark. For example, the number of newly registered cars that can fuel biomethane or natural gas fell by almost 40 percent in 2016 to just 3,240. The EU also sets the framework for the development of renewables in the transport sector. "The promotion of sustainable mobility in the European Union is a great improvement. But it also offers opportunities that Germany is likely to miss, "emphasizes Silk. For the share of 10% renewable energy in the transport sector in Europe 2020, Member States can set a specific subquota of 0.5% for particularly advanced biofuels. "It is therefore incomprehensible why the Federal Ministry of the Environment wants to reduce this quota to 0.05 per cent. We demand a biomethane rate of at least 0.15 percent in Germany. This corresponds approximately to today's market. For what many do not know: already today, it brings biomethane to a share of approx. 20 percent of the fuel consumption for natural gas vehicles, "explained Seide. At the same time, the environmental balance is outstanding. According to a report by the Federal Institute for Agriculture and Nutrition (BLE), the biomethane avoids 84% of climate emissions compared to the fossil reference value. In addition to insights into the political environment, the Berlin conference "Fuels of the Future" also provides lectures on developments in production processes and technologies and presents international practice examples. It becomes clear: While other countries are increasingly taking advantage of the opportunities offered by biomethane, the industry in Germany is always being placed in a new way. This also applies to the raw materials: The strength of the biomethane sector lies in the possibilities for the development of various residual and waste materials. From this strength, the policy has made a weakness because it prefers uniformity in raw materials for CO₂ certification. "We need practical regulations for the implementation of EU sustainability regulations," says Seide.”

January 18, 2017. **L'ora del biogas** da Sergio Ferraris, Tekneco. “Con un'audizione al Senato il Cib ha illustrato le potenzialità di questa rinnovabile. Il biogas arriva in Senato. Questa rinnovabile, sottovalutata, ma dalle grandi potenzialità è stata oggetto dell'audizione del CIB, il Consorzio Italiano Biogas, che si è svolta alla commissione Industria e Ambiente del Senato, dove si è discussa una partita cruciale sull'attuazione della direttiva qualità benzina e combustibile diesel e promozione energia da fonti rinnovabili. “L'agricoltura italiana è in grado, grazie al criterio delle doppie colture su cui si basa il modello del Biogasfattobene , di produrre più cibo e più energia rinnovabile, senza alcuna competizione tra food e fuel, con contributi rilevanti sia per la

competitività e la sicurezza del settore agricolo sia per il raggiungimento degli obiettivi nazionali di decarbonizzazione attraverso i biocarburanti nel settore dei trasporti e il greening della rete nazionale del gas. – ha detto il presidente del CIB, Piero Gattoni – Il modello del Biogasfatto bene permette anche la produzione di biometano, carburante avanzato a bassa impronta carbonica, che porta con sé numerose ricadute positive come l'incremento di carbonio e nutrienti nel terreno, il contrasto ai fenomeni erosivi e di dilavamento dei nutrienti e la riduzione nell'utilizzo dei fertilizzanti di sintesi.”

January 24, 2017. **ADBA: Biogas can be central to UK Industrial Strategy.** “ADBA has today welcomed the publication of the Government’s Green Paper ‘Building Our Industrial Strategy’ and will be setting out over the next few months how AD can play a central role in helping UK industry to flourish (...) ADBA Chief Executive Charlotte Morton said: “We welcome the Government’s Green Paper and in particular the focus on investing in science, research and innovation, which is key to unlocking the full potential of the biogas industry worldwide. We estimate that a government investment of £50m over 5-7 years in a Centre for Anaerobic Biotechnology and Bioresources Research would provide the initiative to deliver a step change in the rate of development of anaerobic biotechnology, putting the UK at the heart of this £1 trillion global industry. AD can make an enormous long-term contribution to UK manufacturing and the low-carbon economy, and we look forward to making this case to Government and others over the coming months to ensure that the bioeconomy is central to the UK’s Industrial Strategy moving forward.”

January 6, 2017. **Finns become Nordic biogas leaders.** Finnish gas utility Gasum announced earlier this week that it has become the biggest producer of biogas in the Nordic region, after completing the acquisition of Swedish Biogas International January 2. Volumes involved remain relatively small. The Linköping, Sweden-based firm produces 300 GWh/yr (28mn m³/yr) of biogas from six units; the transaction was first announced December 23 but the sale price was not disclosed. Gasum already produced annually 350 GWh (33mn m³) of biogas from 450,000 metric tons at its seven biogas plants; it also produces biogas with its partners in Espoo, Kouvola and Lahti. Last month Helsinki’s bus fleet contracted to switch to biogas produced by Gasum.”

January 5, 2017. **Construire une filière biogaz à la française.** [La filière biogaz pourrait produire le tiers de la consommation européenne de gaz](#) par Jean Dubé, Terra. “Après quelques années difficiles où les précurseurs ont essuyé les plâtres sur un plan technique, administratif et financier, la filière biogaz se structure, se professionnalise, et se stabilise. Les perspectives de développement sont immenses et les innovations technologiques repoussent les limites de la taille des ateliers et de leur rentabilité (...) Jean-Marc Onno, agriculteur en Morbihan (...) il est aussi trésorier de l'AMF, l'association des méthaniseurs de France. "Les premiers agriculteurs qui se sont lancés il y a dix ans, ont utilisé les matériels et les installations de fabrication allemande. Or, le schéma allemand n'est pas le schéma français. Les Allemands produisent du biogaz à partir de maïs. Les Français valorisent des déchets. Ce n'est pas du tout la même chose", remarque Jean-Marc Onno. "La conséquence a été un surcoût sur les installations. Certains matériels se sont usés prématurément. Il a fallu transformer certaines installations. Les précurseurs ont dû remettre à niveau leurs investissements. Ceux qui s'installent aujourd'hui n'ont plus besoin d'essayer ces plâtres”.

January 2, 2017. **El biogás en 2016: mucha investigación y poca industria** por Javier Rico, Energías Renovables. “Como a la biomasa sólida, al biogás le llegó la noticia más importante de 2016 en la recta final del año: la Comisión Europea establece criterios de sostenibilidad de obligado cumplimiento. Antes, poca cosa, ya que el biogás agroindustrial español sigue deambulando entre una investigación continua (siempre importante la aportación de Ainia y los proyectos LIFE+) y una realidad comercial paupérrima (46 plantas agroindustriales, según el último informe de la Asociación Europea del Biogás). Solo la planta de Giesa Agroenergía en Andalucía levantó un poco la moral en 2016.”

AFRICA

January 24, 2017. **Ground-breaking waste-to-energy plant opens in Cape Town** by Kim Cloete, Creamer Media Engineering News. “The first large-scale waste-to-energy plant in Africa will be opened in Athlone in Cape Town, on Wednesday, with the aim of converting municipal solid waste into energy. The state-of-the-art R400-million biogas plant is expected to create 80 full-time jobs and few hundred indirect jobs. The plant is owned by New Horizons Energy, a subsidiary of Clean Energy Africa. An innovative partnership with waste management company Waste Mart has been a boost and the culmination of five years of planning (...) Usable waste will be converted into various products, including organic fertiliser, liquid carbon dioxide (CO₂), compressed biomethane, recyclables and refuse-derived fuel. African Oxygen (Afrox) has also come on board as a key partner. It has an offtake agreement to use the gas that is produced (...) “We’re enhancing the recycling economy. There’s great potential in the future to make products such as plastic bricks and roof tiles. Over the lifetime of this plant, we expect many more little industries to be established close to the plant, so that we can drive zero waste to landfill.”

January 11, 2017. **África estrena la primera planta de biogás conectada a la red eléctrica** por Javier Rico, Energías Renovables. “Así la presentan la Fundación Thomson Reuters y Tropical Power, la compañía del Reino Unido que ha desarrollado el proyecto. Tras dos años de anuncios de apertura y puesta en marcha progresiva, los promotores de esta instalación de 2 MW, ubicada en una granja productora de hortalizas y flores a 76 kilómetros de Nairobi, aseguran que Biojoule Kenya, compañía que opera la planta, vende ya la electricidad a Kenya Power & Lighting Company (KPLC). La producción principal de calor, electricidad y fertilizantes se utiliza en la propia granja (...) Afirman que Biojoule Kenia vende la electricidad, tanto a Gorge Farm como a KPLC, por 0.10 dólares el kilovatio hora (kWh) producido, mientras la generada con gasóleo cuesta 0.38 dólares”

January 8, 2017. **Stakeholders Initiate Biogas Association of Ghana**. “A new body, Biogas Association of Ghana (BAG), has been formed to promote the sustainable development of the biogas sector in Ghana. Its objectives are to carry out, encourage and support research into the biogas technology and to ensure the development of quality standards by training actors in the industry based on modern approved practices. The Association was initiated by the Environmental Protection Agency (EPA), the Ghana National Cleaner Production Centre (GNPCPC) and the Energy Commission, at a meeting in Tema, to represent firms, institutions and individuals involved in biogas technology. Dr Elias Delali Aklaku, the President of BAG, in an interview with the Ghana News Agency, said the Association was formed to influence policies that were aimed at improving sanitation, accessibility to energy, agriculture and the control of global warming.”

