

Interview: Charlotte Morton OBE

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1. How would you describe the current state of the biogas and biomethane sector in Europe? Which factors are currently accelerating—or slowing down—its development?

The European biogas and biomethane sector is one of the world's largest and fastest-growing renewable gas markets, although growth remains geographically concentrated. Germany, France, Italy and Denmark remain the region's leading biomethane markets, while Spain is emerging as one of Europe's most promising growth markets, with significant potential for further expansion. Despite these promising signals, installed biomethane production capacity remains well below the EU's ambition of 35 bcm a year by 2030 under REPowerEU - a target set to strengthen energy security and decarbonise transport and other hard-to-abate sectors.

Strong policy support and the accelerating deployment of industrial-scale biomethane plants are driving growth, while permitting complexity, high upfront capital costs and, in some cases, public acceptance issues are holding the sector back from the much faster growth it is capable of.

The World Biogas Association's work is very focused on facilitating the industry to deliver its potential as fast, safely and professionally as possible, which is the objective behind its #MakingBiogasHappen (#MBH) programme, and the programme's key initiatives, the [Global Biogas Regulatory Framework](#) (GBRF) and the [Anaerobic Digestion Certification Scheme International](#) (ADCS International). #MBH is the engine for regulatory de-risking, technical standardisation and structured project pipeline development. One of the key components of the programme is a [new process](#) for accelerating permitting timelines while maintaining regulatory confidence and high standards, which would be a game changer in most biogas markets including European ones. We are working to launch the first pilot and demonstrate the process could be implemented successfully anywhere in the world.

2. Electrification often dominates the energy transition debate. Which roles can biogas and biomethane play that are difficult to replace through direct electrification or renewable hydrogen?

Biogas and biomethane offer a long-established circular-economy solution that complements electrification and renewable hydrogen, providing a renewable, dispatchable energy source for sectors where direct electrification is technically difficult, costly or impractical.

They address both energy and waste-sector challenges at the same time, while making use of existing infrastructure - their circularity is recognised in a number of EU policies, including the Renewable Energy Directive. Biomethane, in particular, can be injected directly into existing gas networks without the need for an entirely new energy-delivery system, and EU gas-market legislation explicitly facilitates renewable-gas access to those networks. That means biomethane can start displacing fossil gas today, rather than waiting for decades of new infrastructure to be built.

3. The European Union aims to produce 35 bcm of biomethane annually by 2030. Do you believe this target remains achievable? What are the biggest obstacles that still need to be overcome?

Reaching 35 bcm by 2030 was always an ambitious target, and on current trajectories the sector will fall short of it - but that doesn't mean it isn't worth pursuing, or that production can't get much closer to it than today's numbers suggest.

As I touched on earlier, permitting is one of the biggest obstacles. Across Europe, the time it takes to secure the permits needed to build and operate a biomethane plant can run to several years, which is simply too slow given how much has to be built before 2030. On top of that, the sector needs faster and more standardised grid-connection processes, a larger pipeline of investment-ready projects, and long-term demand signals that give developers the confidence to commit capital now rather than wait. These are exactly the barriers we hear about consistently through our engagement with WBA members and policymakers around the world, which is why cutting permitting timelines and sharing proven policy models between countries is one of our top priorities as an association.

4. European countries are progressing at very different speeds. Which policy frameworks or market models implemented in countries such as Denmark, France, Italy or Germany could serve as examples for less mature markets?

A few models stand out. France's guaranteed, long-term purchase price for biomethane injected into the grid has given developers real revenue certainty and has been central to that market's rapid growth. Denmark has taken a target-based approach, setting a clear ambition for the share of gas demand to be met by biomethane and designing its support mechanisms explicitly around delivering that target, which has driven very high biomethane penetration relative to the size of its gas grid.

In several markets, a "right to inject" - an obligation on network operators to connect biomethane producers, with connection costs socialised across the network rather than loaded entirely onto individual developers, as is the case in Germany - has removed one of the most common blockers project developers face.

What these examples have in common is that they replace regulatory and financial uncertainty with predictability: guaranteed offtake, guaranteed connection, and a clear multi-year trajectory. Less mature markets don't need to reinvent these mechanisms; they can adapt what has already been tested and shown to work elsewhere in Europe.

This is precisely the thinking behind WBA's own [Global Biogas Regulatory Framework](#) (GBRF), which draws on exactly these kinds of proven policies and business models from around the world and packages them so they can be adapted to local circumstances rather than developed from scratch. We are now working with governments to put GBRF's recommendations into practice, starting with targeted states in India and Brazil, to help those markets implement the policies, regulations and standards that can change their trajectory.

5. Spain has abundant agricultural, livestock, agro-industrial and municipal organic waste resources, together with an extensive gas infrastructure. From your international perspective, how do you assess Spain's potential, and why has its development lagged behind that of other European countries?

Spain has one of the strongest underlying resource bases in Europe - abundant agricultural, livestock, agro-industrial and municipal organic waste, an extensive gas distribution network already in place, strong renewable-energy credentials and a growing pipeline of announced projects. On paper, its feedstock potential alone should place it among Europe's leading biomethane producers.

Spain still has relatively few biomethane plants injecting into the grid compared with leading European markets, well short of the potential most analyses point to for 2030. The gap reflects, in significant part, to policy and market design rather than resource availability: for much of the past decade, Spanish support mechanisms were geared towards electricity generation rather than grid injection, and the withdrawal of earlier feed-in-tariff support slowed the sector's development just as other European markets were accelerating. Without a stable, long-term demand signal specifically for biomethane injection, and with permitting still slow, developers have found it harder to secure

financing than in markets like France or Denmark - even though the underlying business case in Spain is, on paper, very strong.

We have also seen pushback from some communities in Spain, and in our experience this often comes down to a lack of understanding of the technology rather than genuine opposition to it. Ultimately, this is a failure of the biogas sector itself to explain what it does in simple, accessible terms to a public that, in many cases, has never encountered anaerobic digestion before. It's a recurring issue we see across markets, not just in Spain, which is why WBA hosts quarterly roundtables bringing together national biogas associations from around the world to share experiences and support each other - public understanding and communication is one of the challenges we are collectively trying to tackle.

6. If you could recommend three priority actions to Spanish policymakers to unlock this potential, what would they be? In particular, how important are long-term demand signals—such as biomethane blending obligations or other support mechanisms—for attracting investment?

I would prioritise three things. First, a clear, binding long-term demand signal - whether a biomethane blending obligation, a guaranteed purchase price for injected volumes, or both - because nothing gives investors and lenders more confidence than knowing there will be a market for what they produce over the next fifteen to twenty years. Second, streamlined, time-bound permitting, ideally with a single point of contact for developers and statutory deadlines for decisions, so that Spain's strong project pipeline can actually convert into operating plants rather than stalling at the planning stage. Third, a supportive framework for grid connection, including some socialisation of connection costs, so that smaller and mid-sized projects are not priced out.

On the importance of demand signals specifically: they matter enormously. The United States illustrates both the strength and the vulnerability of markets that rely heavily on tradeable compliance credits. They can provide a powerful revenue stream for renewable fuels, but changes in regulatory requirements and credit values can also affect project economics. Spain therefore needs demand certainty that does not depend solely on a volatile credit price.

7. Feedstock availability is critical for the sector's growth. How can production be expanded while avoiding competition for waste resources, unsustainable energy crops or excessive transport distances?

Feedstock availability is indeed critical for the sector's growth; however, a very large amount of organic waste is still not being properly recycled. Food waste, agricultural residues, manure, sewage, industrial wastewater and other organic wastes all have significant value, both as sources of renewable energy and as sources of nutrients. What's more, when these wastes aren't recycled, they release methane as they break down - a gas that warms the planet far faster than CO₂ over the short term. It is therefore vital that we make much better use of the organic waste we already generate, rather than treating feedstock as a commodity that can simply be transported further and further to support new plants.

To do that, we need territorial intelligence and feedstock planning. Plants should be appropriately sized and located in relation to their feedstock base and end markets, with secure, long-term supply arrangements to give developers, farmers and waste producers greater certainty. The challenge is therefore less about finding ever more distant feedstocks and more about putting the infrastructure, policy and markets in place to capture resources that are currently being wasted.

This is also why WBA is pushing hard at international level. The Turkish COP31 Presidency has made the rapid reduction of waste-derived methane emissions its number one priority for this COP, and we see that as a real opportunity. WBA is advocating for countries to commit to a Protocol on Organic Wastes: a binding international framework for recycling organic waste streams that would ensure these feedstocks are properly collected and made available to biogas plants, rather than left

to decompose and emit methane. Spain, with its strong feedstock base, would be well placed to benefit from exactly that kind of framework.

8. Some biomethane projects are facing growing local opposition over concerns such as traffic, odours, resource use or the concentration of facilities. In your experience, what distinguishes a well-designed project, and how can developers build public trust from the outset?

A well-designed project starts by understanding that being technically or financially viable is not enough. An anaerobic digestion plant must work for the community where it is located, as well as for its operator. Public confidence depends on the sector demonstrating consistently high standards, including strong environmental and operational practices, which should be built into the project from the outset rather than treated as issues to address once planning concerns emerge.

Developers should engage with local stakeholders early, listen to legitimate concerns, and clearly explain both the benefits and the potential impacts. When communities can see local organic waste being recycled into renewable energy, biofertiliser and potentially other valuable products, the project becomes far more attractive.

As I mentioned, WBA has also developed the [Anaerobic Digestion Certification Scheme International](#) (ADCS International) as part of the #MakingBiogasHappen programme. It certifies and benchmarks a plant's operational excellence and safety, giving communities and regulators a credible, independent signal that a project meets a high standard - and giving operators and investors confidence that the plant is being run in a way that protects both its performance and its financial returns.

9. The conversation often focuses on renewable gas, while digestate receives far less attention. What role can digestate play in reducing Europe's dependence on mineral fertilisers and strengthening nutrient circularity? What barriers still prevent wider market uptake?

Digestate is a co-product of anaerobic digestion and contains valuable nutrients, including nitrogen, phosphorus and potassium, which can be returned to agricultural soils. In the current European context, where fertiliser security and affordability have become strategic issues, digestate helps strengthen nutrient circularity and helps farmers reduce their dependence on mineral fertilisers and the associated input costs.

The main barrier is therefore not a lack of value but the absence of sufficiently developed markets and consistent regulatory frameworks. For some time, digestate was treated as a waste product, subject to administrative burdens that created legal uncertainty and an uneven playing field. The EU Fertilising Products Regulation, adopted in 2019, was an important step towards addressing this, creating a pathway for digestate to enter the EU internal market and compete alongside mineral fertilisers. However, digestate remains a waste product until it is brought to market as a CE-marked EU fertilising product, which will not always be the case, and EU Member States continue to take different approaches to waste, end-of-waste and by-product status because they interpret and implement these concepts differently in their national legal frameworks.

Other regulatory barriers and conformity-assessment procedures also limit wider uptake. Auditing and laboratory-analysis costs required to attest conformity and quality standards, for example, are disproportionately high for small installations, given that the resulting fertilising products do not yield a high financial return. As a result, not all digestate will be brought to market as a CE-marked EU fertilising product, and producers do not face a level playing field across EU countries. At national level, the marketing and use of digestate as an organic fertiliser or soil improver should therefore be regulated by including digestate explicitly in national fertiliser regulations, to stimulate the circular economy domestically. Policymakers should also recognise the importance of regulating digestate as a fertilising product even without CE marking.

10. The credibility of biomethane depends on minimising methane emissions and demonstrating genuine climate benefits. What standards for monitoring, certification and traceability should become common practice across Europe?

The basic principle should be: if methane is the product, it should not leak into the atmosphere. Methane leakage is both an environmental and a business problem, and this, along with underperforming plants, can undermine the industry's credibility. Every methane molecule that escapes is lost product, lost revenue and an avoidable climate impact. That means leak prevention, monitoring and repair need to become routine elements of plant operation.

We also need credible certification and traceability so that the climate performance of biomethane can be demonstrated throughout the value chain. This is where initiatives such as the ADCS International can play an important role as it establishes common plant-performance expectations and minimum health, safety and environmental standards.

11. Beyond renewable gas production, the biogas sector is increasingly discussing biogenic CO₂ utilisation, carbon removals and negative emissions. How important do you believe these opportunities will become for the sector's long-term competitiveness?

Anaerobic digestion is fundamentally a multi-product technology, and biogenic CO₂ is one of its co-products. It is already used widely in the food and beverage industry and has real potential in areas such as e-methanol, where biogenic CO₂ can be combined with renewable hydrogen to produce green molecules for difficult-to-decarbonise sectors such as shipping, aviation and chemicals.

AD's long-term competitive advantage lies precisely in this ability to produce several valuable products from the same organic resource. The more effectively we can valorise biomethane, nutrients and biogenic CO₂ together, while preventing methane emissions, the stronger the overall economics and climate case for the sector becomes.

A recent report by the UK's Anaerobic Digestion and Bioresources Association (ADBA), [*The World's Cheapest Cleaner*](#), puts real numbers behind this. It found that capturing biogenic CO₂ through the biogas-to-biomethane upgrading process can remove carbon from the atmosphere at a quarter to a half of the cost of competing greenhouse gas removal technologies. The findings are UK-specific, but the underlying economics - an established, already-deployed process outcompeting newer, more speculative carbon removal technologies on cost - will apply wherever anaerobic digestion operates at scale. It's a strong illustration of just how significant a role this sector can play in delivering genuine negative emissions.

12. Biomethane will remain a limited resource. In your view, which sectors should be prioritised for its use—hard-to-abate industries, heavy transport, shipping, flexible power generation or heating—and why?

We should prioritise applications where biomethane can deliver the greatest emissions reduction: sectors where fossil fuels are genuinely difficult to eliminate and where few practical alternatives exist. That points naturally towards uses that need an energy-dense, storable and dispatchable molecule rather than direct electricity.

Because biomethane is chemically equivalent to natural gas, it can be deployed immediately, using existing gas infrastructure and existing gas-powered vehicles, rather than waiting for new delivery systems to be built. That makes it especially valuable in heavy road and maritime transport - it has already demonstrated its potential in long-haul logistics, public transport and food distribution, and bio-LNG offers a real decarbonisation route for shipping - and in industrial heat, including for hard-to-electrify processes and as an input for the glass, steel and ceramics industries.

Ultimately, the optimal use in any given market will depend on the availability of sustainable feedstocks, existing infrastructure and the alternatives available.

13. Looking ahead to 2030 and beyond, what developments do you expect will have the greatest impact on the sector? What opportunities should Spanish companies be preparing for today?

I expect three developments to shape the sector most. First, a shift from biomethane being seen mainly as a transport or heating fuel to being recognised as a genuine multi-product platform - gas, biofertiliser and biogenic CO₂ for e-fuels and industrial uses - which changes the underlying economics of every new plant. Second, growing pressure, from both regulation and corporate buyers, for verified, traceable climate performance, meaning certification schemes such as WBA's ADCS will increasingly become close to a market entry requirement rather than a differentiator. Third, a sharper focus on making full use of feedstock that is already being generated, rather than competing for scarce energy crops or transporting waste over long distances, which will reward companies with strong territorial and feedstock-planning capabilities.

For Spanish companies, this means the opportunity isn't just about building more biomethane plants - it's about developing local, integrated projects that combine gas production, nutrient recovery and, where relevant, biogenic CO₂ utilisation, and positioning early for the certification and traceability requirements that European and international buyers will increasingly demand. Spain's combination of abundant feedstock, existing gas infrastructure and strong renewable credentials means that, if the policy and permitting barriers we've discussed are addressed, it has real potential to become one of Europe's leading biomethane markets over the next decade.