Creating value in the biobased economy

Dutch perspectives, solutions and technology for global growth

Netherlands

2025

Innovation rooted in nature

The biobased economy starts at home, but can only be scaled up effectively by building international partnerships. That, in a nutshell, is how the Dutch are working towards a future built on renewable resources. While the country aims to make the most of homegrown, sustainable biomass sources, it is also investing in global supply chains and smart processing technology, to help partners around the world create local value and boost clean business.

Sugar beet is one of the most prominent and productive crops in the Netherlands. The country produces over 6 million tonnes of sugar beet each year. Although its primary use is sugar production, the process generates over 1 million tonnes of beet pulp as residue – much of which is used to produce biogas and, increasingly, to extract valuable raw materials for manufacturing bioplastics.

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Dutch perspectives on a global biobased economy

Biomass and biobased resources are essential to the global transition toward a sustainable, circular, and fossil-free economy. They not only provide some of the most effective short-term solutions for reducing greenhouse gas emissions – through bioenergy and advanced biofuels – but also lay the foundation for long-term breakthroughs in sustainable chemicals and materials. By replacing fossil resources with renewable feedstocks, the bioeconomy strengthens energy security, creates new markets, and drives innovation around the world.

The Netherlands is exceptionally well-positioned to lead this transition. Our country combines world-class knowledge institutes, innovative companies, technologically advanced agriculture, highly developed infrastructure, and major international ports with a robust chemical and energy sector. This powerful ecosystem is supported by active government policy that stimulates innovation and market growth. Public–private partnerships, coordinated through Top Consortia for Knowledge and Innovation (TKIs) and programmes such as ChemistryNL, connect science, business, and policy to accelerate the development and roll-out of new technologies and international collaboration.

This integrated approach is a characteristically Dutch strength. It enables us to quickly turn knowledge into practical applications, and practical applications into scalable, economically viable solutions. From sustainable biomass sourcing and biorefinery development to advanced applications in energy, fuels, chemicals, and materials, the Netherlands has built a biobased sector that is both innovative and globally connected.

This guide showcases the sector's innovation and expertise – and, we hope, will inspire you to consider ways in which we can work together, as global partners, to advance the biobased economy and foster sustainable solutions worldwide.

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Building a biobased economy

Climate change, resource depletion, and population growth have made the shift to a biobased economy both urgent and inevitable. Yet a fossil-free future is not only a necessity – it's an economic opportunity. The biobased economy is unlocking new pathways for sustainable growth, future-proof jobs, and cleaner industries. Throughout this transition, Dutch expertise and innovation are helping to build a resilient, circular economy for the future.


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Across Europe and the world, governments are setting ambitious targets to accelerate the transition to a fossil-free future. The Dutch government's goal is to achieve a fully circular economy by 2050, with significant interim targets for 2030.

Driving this transformation is a complex set of opportunities and challenges. A biobased economy offers the potential for profound emission reductions and the development of new, high-value industries. Yet, it also involves tough questions. For example, questions about the availability and responsible allocation of sustainable biomass, how to avoid competition with food systems and set environmental safeguards. New infrastructure and value chains will be needed. Success in these areas will require not only technical breakthroughs but also new ways of working together, across sectors and national borders.

The Netherlands, despite its small size, is well positioned to help solve these various challenges. The country repeatedly ranks among the world's most innovative countries. It enjoys a top five reputation for agricultural and chemical exports, has one of the highest numbers of patents per capita globally, as well as a top 10 ranking in the Global Innovation Index. This position is built on a culture of close collaboration between established companies, start-ups, world-class research institutes, and the public sector, forming a fertile ground for testing and scaling transformative ideas.

This is especially visible in the country's rapidly evolving biobased sector. Dutch know-how feeds into policy discussions and global innovation platforms – for example as an active participant in the IEA Bioenergy Mission Innovation Integrated Biorefineries Mission, and as a partner in major EU research initiatives. The Netherlands is home to a prominent, advanced chemical industry and to specialised research groups at the country's universities and applied research organisations. The Netherlands is also a logistics powerhouse, home to major ports, which are excellently placed to act as biobased hubs, connecting European demand with international supply chains and shipping corridors.

Pooling these strengths, the Dutch biobased sector is taking coordinated action to maximise its impact. Not only in terms of technologies, but also by looking at the wider context. The Dutch are a pragmatic people, swift to identify what it takes for an idea to succeed, and adept at rethinking and redesigning value chains, exploring innovative business models, and weighing the long-term impact of every choice.

For example, the Dutch government, industry, and knowledge institutes have embraced the 'carbon chain' concept, which recognises that sustainable carbon carriers from biogenic and recycled sources will remain essential. That in view of the relative scarcity of biogenic raw materials and the potential impact of biomass demand on food production, land use and environmental quality, it's important to make the most of existing, responsibly sourced biomass, and to develop the potential of new or underused sources. And finally, that it's vital to prioritise and ensure that available feedstock will be directed towards the sectors and applications where it will have the biggest impact on emissions reduction.

Biobased technology clusters in the Netherlands

Universities and research centers

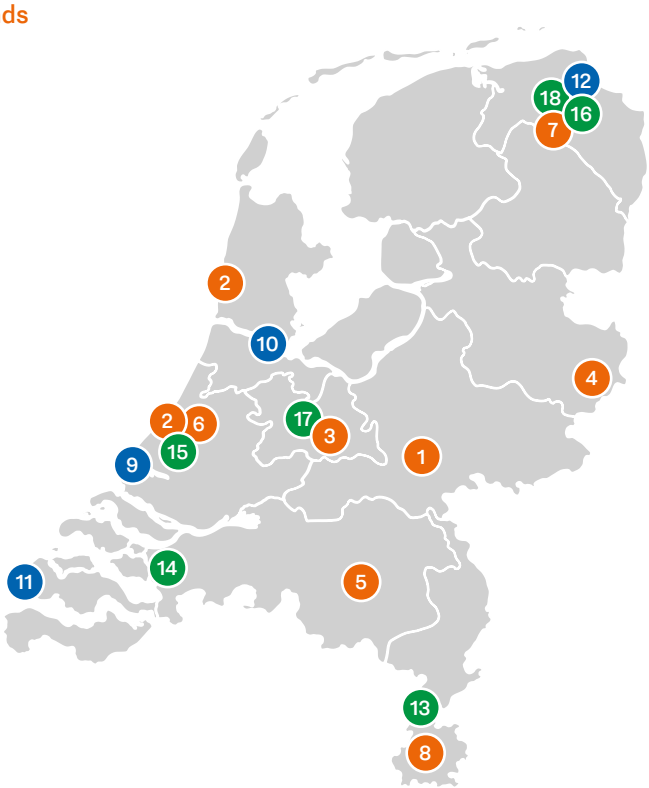
1. Wageningen University & Research (WUR)
2. TNO Delft and Petten
3. Utrecht University
4. University of Twente
5. Eindhoven University of Technology
6. Delft University of Technology
7. University of Groningen
8. Aachen-Maastricht Institute for Biobased Materials

Biomass logistics and biofuel clusters

9. Port of Rotterdam
10. Port of Amsterdam
11. North Sea Port
12. Groningen Seaports

Circular/biobased materials & biorefinery clusters

13. Brightlands Chemelot Campus
14. Green Chemistry Campus
15. Biotech Campus
16. Carbohydrate Competence Center
17. Advanced Research Center Chemical Building Blocks Consortium
18. Chemport



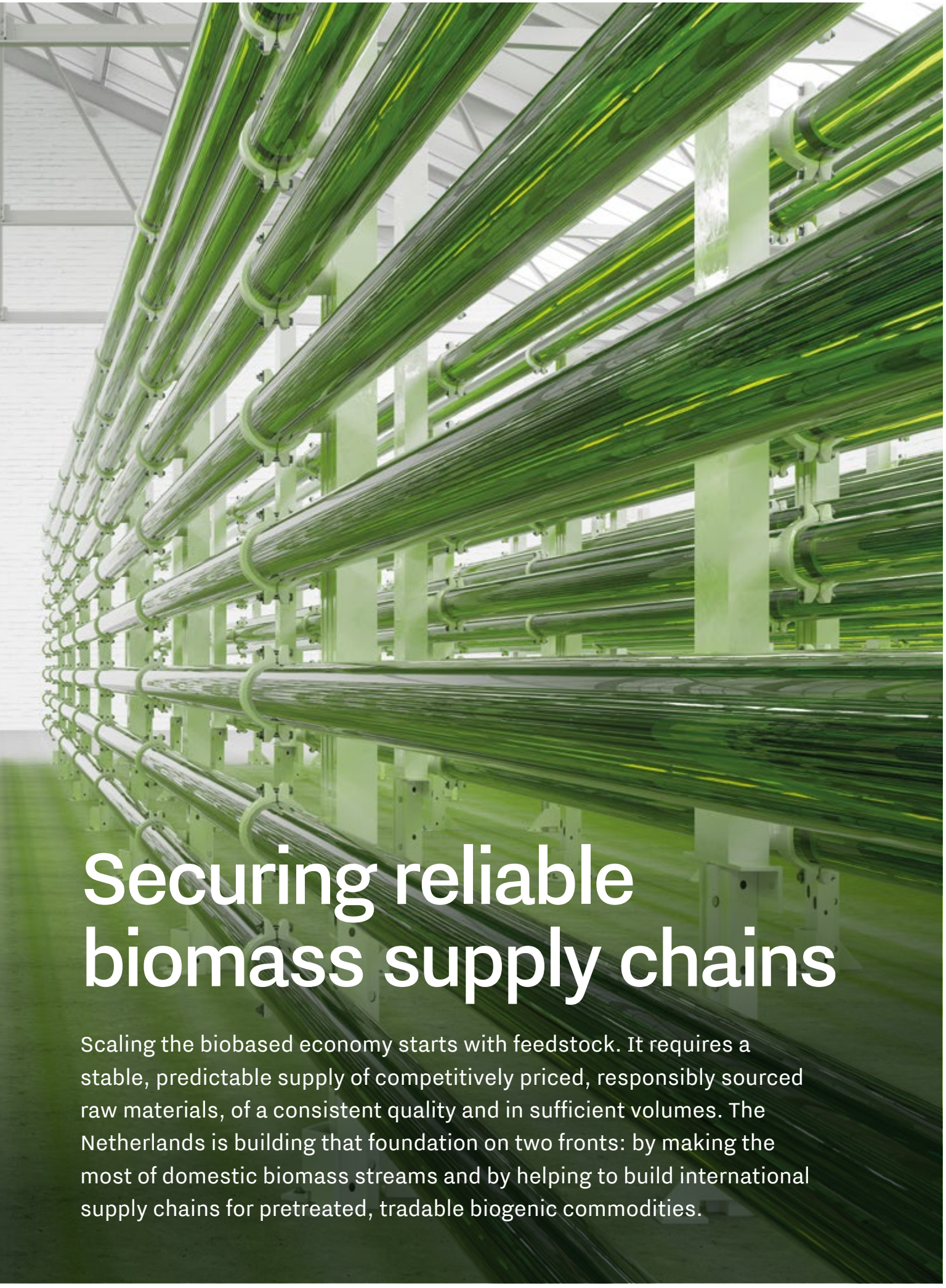
Four examples of joint biobased innovation

ARC CBBC is a leading public–private research consortium, in which the universities of Utrecht, Groningen and Eindhoven and industrial multinationals BASF and AkzoNobel have pooled research talent and industrial know-how. ARC CBBC drives long-term discoveries, such as next-generation catalysts and novel building blocks, which lay the groundwork for translating academic breakthroughs into scalable solutions for fuels, plastics, coatings, and more.

In the **COMPOCYCLE** project, the universities of Wageningen and Delft have joined forces with industry partners and composites producers to develop fully biobased and recyclable composites from natural fibres like hemp and bamboo. Through co-creation, they design resins that enable easy recycling or upcycling after use. The project accelerates lab-to-market scaling by directly involving manufacturers and real-world testing.

Through its **Jumpstart** initiative, dairy cooperative FrieslandCampina has mobilised around 100 dairy farmers and multiple technology suppliers. The programme accelerates the energy transition on farms by piloting and implementing sustainable technologies such as manure digesters and biogas systems, fostering collaboration across the chain to create practical, circular solutions for climate-friendly dairy production.

The **New Energy Coalition** promotes joint innovation by connecting a wide network of public and private partners, industry players and research institutes. This coalition was set up to develop and scale renewable solutions in diverse areas including biofuels, and circular feedstocks, linking scientific expertise with practical applications across the entire energy value chain.



Securing reliable biomass supply chains

Scaling the biobased economy starts with feedstock. It requires a stable, predictable supply of competitively priced, responsibly sourced raw materials, of a consistent quality and in sufficient volumes. The Netherlands is building that foundation on two fronts: by making the most of domestic biomass streams and by helping to build international supply chains for pretreated, tradable biogenic commodities.

The Dutch approach begins at home, by maximising the use of domestic biomass and organic waste streams. Local sourcing cuts transport emissions and reduces the risk of shifting land-use or biodiversity impacts to other countries.

According to a national biobased raw materials vision and related roadmaps, by 2030 the Netherlands can supply 40 million tonnes of dry biomass domestically, a 25% increase compared to 2020. Part of these volumes will come from crop-based sources such as sugar beet, starch crops or grass. However, the majority (over 75%) will come from a variety of residues, including agricultural and forestry wastes, as well as industrial or municipal organic waste.

Pretreatment technology

To unlock this potential, residual streams of widely varying quality and composition need to be processed and often pretreated. The Netherlands has extensive experience with anaerobic digestion and upgrading to green gas/biomethane, and with valorising fibres and lignin from grass and wood into useful materials. Dutch companies and research institutes also lead in new conversion routes for challenging biomass (such as heterogeneous, woody, or wet streams), including fast pyrolysis, hydrothermal treatment, and gasification.

There is also growing focus on conversion to methanol: this versatile intermediate can often be produced close to the source and used directly, without refining, to be converted to biofuels or used as feedstock for various chemicals. Another advantage of methanol conversion via gasification is that gasifiers can be used for other conversion routes or for recycling additional waste streams, helping to close circular production loops and strengthen the business case.

Sourcing and the need to import biomass

Even after maximising domestic production, local biomass demand will outstrip supply and significant volumes will have to be imported. Because much of this biomass travels long distances, the focus is on pretreated, energy dense carriers such as torrefied pellets, bio oils, and biomethanol, alongside other feedstocks and ready-to-use biofuels. Several Dutch companies actively support biomass-producing countries in building or optimising treatment facilities. Through innovative technologies, including torrefaction, pyrolysis, hydrothermal liquefaction, and gasification, local cooperatives and businesses can process biomass into tradable commodities, either for domestic or regional markets or global export.

These technologies are used to extract more value from existing biomass streams and to unlock the potential of new or underdeveloped sources. Examples include versatile, fast growing (energy) crops such as miscanthus or bamboo, provided they do not compete with food production. Perhaps even more importantly, there are growing opportunities to extract value from agricultural or industrial organic waste streams. For example, a Dutch-developed hydrothermal treatment method paves the way

In 2024, North Sea Farm 1 was launched: the world's first commercial seaweed farm located between offshore wind turbines. Located 18 km off the Dutch coast, the 5-hectare site serves as a blueprint for scaling seaweed cultivation and harvesting within wind farms, unlocking previously unused space and enabling year round biogenic feedstock.

Perpetual Next is developing large-scale biomethanol production plants in the Netherlands and abroad (such as the plant pictured here, in Estonia), based on residue feedstock such as wood waste, used mixed wood and other low-grade organics. Its standardised concept for biomethanol production can serve as a blueprint for the rapid deployment of similar facilities around the world.

Torrgreen turns challenging, seasonal residues into torrefied, energy-dense and water-resistant pellets that are compatible with existing logistics. Its torrefaction units can handle a wide range of woody and herbaceous biomasses including pits and shells and can be run off-grid, enabling flexible deployment in rural regions and early-stage supply chains.

for efficient conversion of wet organic residues such as sewage sludge or paper industry waste into pelletisable dry biomass and a biogas ready liquid. Another Dutch innovation enables the processing of a wide range of woody residues into a single homogeneous bio oil with standardised quality. Dutch researchers and companies are also exploring the use of 'new' agricultural residues, from coconut fibre to pineapple residues, seaweed, and even prawn shells.

Scaling up global supply chains and market supply

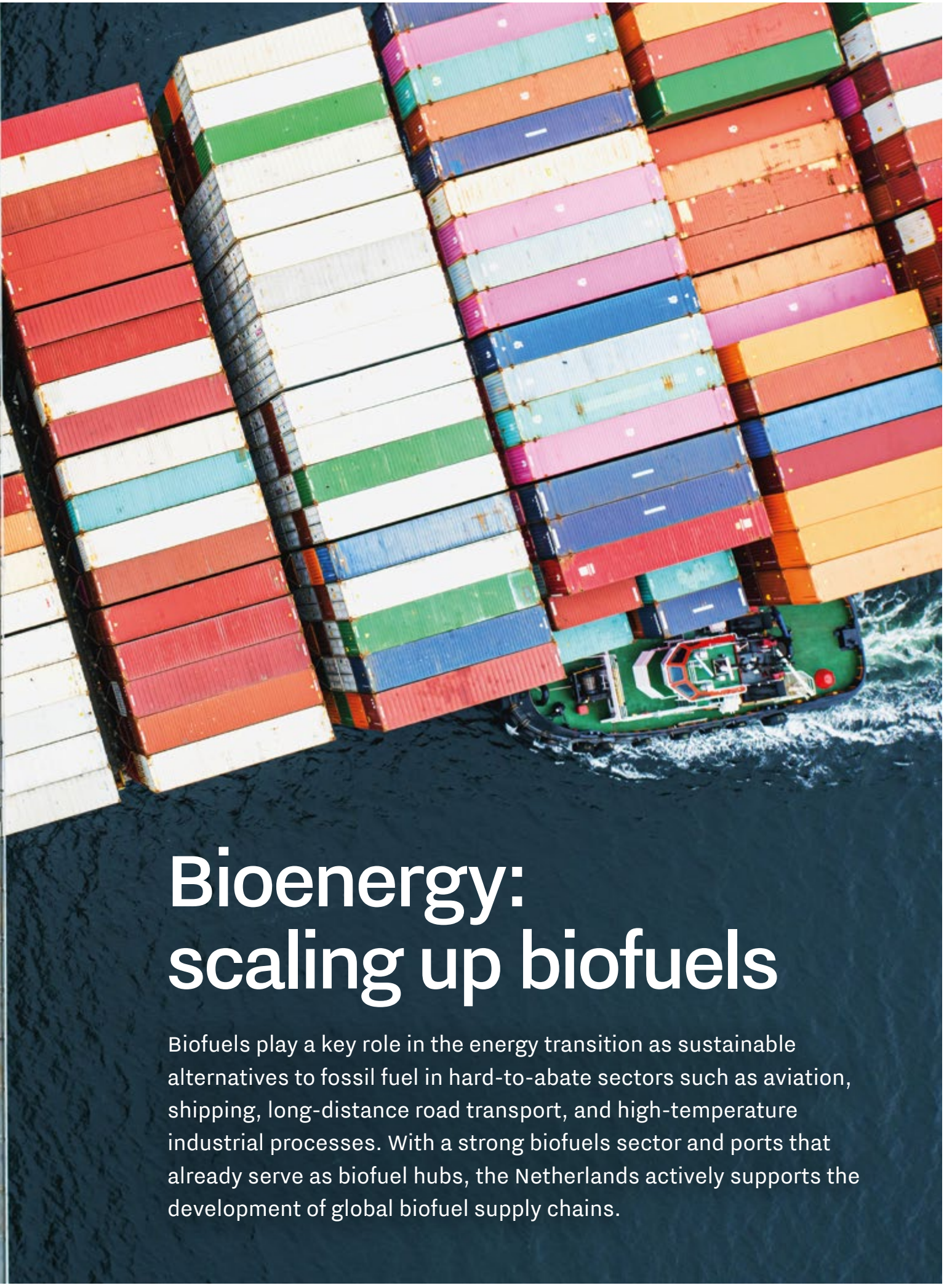
Of course, valorising biomass requires more than production and processing technology. Production sites must be connected to markets. Here, too, the Netherlands contributes. Dutch actors are developing partnerships with other countries to set up cross border biomass and biogenic feedstock supply chains into the Netherlands and onward into Europe. For example, various initiatives are underway linking Brazilian biomass value chains to European markets via the Netherlands. Such efforts are underpinned by the country's strategic location as one of Europe's crucial logistics hubs and by extensive experience organising complex global supply chains. The main seaports of Amsterdam and Rotterdam are particularly well positioned to serve as major biomass hubs. They offer extensive facilities for storage, transshipment, processing, and inland logistics, and play a crucial brokerage role between producers and buyers of both bulk and liquid (chemical, food and material) products. And as volumes of fossil feedstocks (especially coal) decline, more space becomes available for biobased activities, with both ports investing in dedicated biobased zones and/or prioritising sustainable activities.

For a well functioning market, finally, downstream users of biobased feedstock also need confidence in available volumes, consistent product quality, and transparency regarding the origin and sustainability of shipments. Dutch players are active on all these fronts. Researchers support commoditisation by helping to establish standardised specifications, while other Dutch organisations specialise in the complex processes of certifying biomass streams and ensuring compliance with international standards.

In Indonesia, the Dutch are working on a biomass production site that will double as a soil regeneration project. A disused open coal mining site, unsuitable for agricultural use, will be used to grow large amounts of napier grass, benefiting from existing railway connections for transporting the harvested biomass. The project will generate local jobs and will contribute to the gradual recovery of the site for other uses.

BTG Bioliquids' fast pyrolysis technology can convert different types of residues into a homogeneous, standardised bio-oil for heat, power, and refinery co-processing. Its reference plant in the Netherlands has already produced thousands of tonnes of oil, while the technology has also been deployed in Scandinavia and Malaysia. Parent company BTG, meanwhile, has supported biomass projects in over 80 countries as consultant and project developer.

TORWASH, developed by TNO, is a mild hydrothermal treatment that upgrades wet, hard to handle residues, such as paper sludge and biosludge, into a pelletisable solid and a liquid suitable for biogas production. The technology has been used at a Dutch wastewater purification plant, where it can process up to 1,000 kg of sludge per hour.



Bioenergy: scaling up biofuels

Biofuels play a key role in the energy transition as sustainable alternatives to fossil fuel in hard-to-abate sectors such as aviation, shipping, long-distance road transport, and high-temperature industrial processes. With a strong biofuels sector and ports that already serve as biofuel hubs, the Netherlands actively supports the development of global biofuel supply chains.

In line with the cascading principle, biomass is increasingly upgraded into high value fuels rather than burned in power plants, targeting specific sectors and applications that are likely to remain dependent on energy-dense carbon carriers for decades. Within the Dutch 'carbon chain concept', the focus is on developing and scaling biofuels for aviation, maritime, and heavy road transport (along with making biobased chemicals and materials). In parallel, green gas will play a major role in phasing out national natural gas consumption and as a sustainable substitute for natural gas as an industrial feedstock, or as a fuel in cases where electrification and/or hydrogen are not (yet) feasible.

A global biofuel hub

The Netherlands is a fuel nation of international significance. Its ports provide deep water access, large-scale storage, and high-quality connections to the Northwest European hinterland by road, rail, and pipeline. Rotterdam hosts a top-tier petrochemical cluster, and Amsterdam is a major storage hub where, under EU rules, significant volumes of biofuels are already blended for marine, aviation and road transport applications. Both ports export substantial volumes of fuels and intermediates and are investing in new facilities and dedicated zones for biobased activities. The Dutch are also adept at building reliable, flexible global supply chains and are home to a strong ecosystem of energy and fuel traders and service providers in areas such as certification, that can help build and scale robust trading corridors.

This platform has already proved to be a good basis for establishing a strong biofuels sector. Despite its small size, the Netherlands ranks among the global top ten by biofuel production volume. Rotterdam is Europe's largest biofuel cluster and a global frontrunner in supplying biofuels to the shipping industry. It's home to Europe's largest bioethanol plant, and the continent's largest HVO/SAF producer. Amsterdam has recently seen biodiesel plants scale up, while other industrial clusters produce a range of biofuels, including biomethanol, biokerosene, biodiesel, and bio LNG, with more than ten additional facilities either planned or already under construction.

Sustainable shipping and aviation

The Netherlands is particularly active in the critical end use segments of shipping and aviation. As Europe's largest bunker hub, it already supplies significant volumes of bio-blend marine fuels and is advancing biomethanol and bio LNG as maritime transition fuels. Since 2010, the country has also been a pioneer in sustainable aviation fuel (SAF), hosting leading developers of dedicated SAF production plants and a broad ecosystem working on new conversion routes for next generation SAF. This is essential because meeting future SAF demand requires feedstock volumes beyond those available via today's dominant routes (notably used cooking oil). New pathways – especially gasification via syngas and biochemical conversion – allow SAF producers to use more readily available feedstock such as agricultural and forestry residues and organic industrial waste.

Synergies in Energy

The Netherlands is actively fostering collaboration between the bioeconomy and other renewable energy sectors, such as the hydrogen sector. Through government programmes such as the Integrated Biorefineries Mission and industry-led efforts, the Netherlands is exploring cross-sector synergies and deepening partnerships where possible. Notable opportunities include joint developments and innovations in sustainable aviation fuel (SAF), both electricity-based (e-SAF) and biobased (bio-SAF), as well as renewable methanol.

Founded in 2009, SkyNRG helped build the global SAF market, supplying more than 30 airlines and enabling the world's first commercial SAF flight in 2011. The company still supplies SAF and, as a project developer, is planning to build the world's first dedicated SAF plant in the Netherlands. Expected to be operational in 2028, the facility will produce up to 120,000 tonnes of SAF per year from low-quality oils and fats.

Vertoro's technology enables the production of lignin oil from forestry and agricultural residues, for use in drop-in fuels, chemicals, and materials. Backed by Maersk to co-develop lignin-enabled marine fuels, the company recently announced a collaboration with Raízen to valorise lignin residue from Brazilian ethanol plants. The collaboration includes blending with ethanol or methanol for dual fuel engines, co-processing toward SAF and marine fuels.

Nordsol designs and operates compact plants for upgrading biogas from organic waste into bio-LNG, enabling immediate defossilisation of heavy road transport and shipping, using existing LNG infrastructure. In Amsterdam the company partnered with waste processing company Renewi and Shell to build the Netherlands' first bio LNG plant, producing about 3.4 kilotonnes per year and supplying Shell's LNG stations.

Finnish multinational Neste operates Europe's largest biorefinery in the Port of Rotterdam. The Port of Rotterdam is home to Europe's largest bioethanol plant (Alco Energy's 650,000 million litre facility) and the continent's largest HVO/SAF producer. The latter (Neste, pictured above) is expanding its facility, more than doubling its production capacity to 2.7 million tonnes of renewable products, making it the world's largest biodiesel and SAF refinery.

The Port of Amsterdam provides extensive facilities for biofuel storage, transshipment, and blending. The port has earmarked a dedicated zone for biobased activity, with 30 ha worth of 'plug-and-play' plots adjacent to tank terminals. Current biofuel producers based in Amsterdam include Greenergy, which produces biodiesel from waste and recently expanded its production capacity by 25%. Argent Energy has announced plans to triple its biodiesel production capacity, and recently opened Europe's largest production facility for bio-based, technical-grade glycerine.

Such innovations underscore that the country's greatest impact on global biofuel uptake may be as a developer and scaler of innovative technology. Over the years, Dutch organisations have played key roles in developing and refining new biorefinery and conversion methods, often adopted and scaled in collaboration with international partners, both in the Netherlands and abroad. This draws on a well aligned ecosystem of agile technology firms, multinationals, and world class research institutes with advanced labs and pilot facilities.

Today, a notable pipeline of Dutch innovations is being tested, refined, and prepared for scale up. These include new gasification based routes to convert biomass or waste streams into methanol and/or drop-in fuels. Other examples are technologies that produce biocrudes such as fast pyrolysis oil from woody residues, and lignin rich oils from abundant yet underused feedstock like paper mill by-products.

Growth in green gas

The Netherlands has a robust biogas industry, primarily using anaerobic digestion of animal manure, sewage sludge, and organic waste. Growing volumes of raw biogas are upgraded to grid quality green gas (biomethane), which can be injected into the national gas network. The Netherlands, home to one of the world's densest and most sophisticated natural gas grids, is gradually phasing out natural gas. While a significant part of the network looks set to be repurposed as a national hydrogen infrastructure, the remainder can be transformed into a biomethane network.
In 2024, 294 million m^3 of green gas was injected, and by 2030, the country expects to produce 2 billion m^3 of green gas, half of which will be injected into the gas grid.

Meanwhile, the Dutch are working on new and improved technology for producing green gas. While anaerobic digestion is a proven technology, there is ample room to improve efficiency and economics. Dutch regional clusters of technology companies and research institutes are developing solutions to increase biogas yields, upgrade biogas to green gas more efficiently, and recover valuable nutrients and chemicals from digestate. Meanwhile, entirely new conversion routes are emerging. The Netherlands has developed and demonstrated gasification techniques that can boost yields and accelerate green gas production from wet, hard to digest, or even non-digestible feedstock.

The Ritsumadyl cycling bridge is a 17-meter, movable bridge in the northern province of Friesland, constructed out of biobased composite materials.

Designing biobased materials

A crucial guiding principle in Dutch biobased economy plans is to focus on extracting maximum value from available biomass. New technologies are opening up new possibilities for separating biomass into fractions that can be processed into valuable building blocks for a wide range of sustainable chemicals, bioplastics, and biobased building materials.

Biorefining is not a new concept, but the fractionation techniques for separating biomass into its constituent components are becoming ever more sophisticated. An important driver for such innovation is that numerous new applications for biomass-derived fractions are being developed at the same time.

Next-generation biorefinery

Dutch researchers and technology developers are highly active on both fronts. For example, TNO has developed a process (FABIOLA) that can extract three high-grade components from a wide variety of woody biomass. Compared with conventional biorefining, this process is more flexible and energy-efficient, delivering higher yields and significantly improved lignin quality. While in traditional biorefinery processes lignin is often seen as a degraded byproduct, the new technology can extract 75–80% high-quality lignin, suitable for high-value applications such as polyurethane foams, resins, coatings, adhesives, and bio-based building materials.

Meanwhile, active work is ongoing to develop applications for these extracted materials. Frequently, the process starts by taking a few steps back: with the help of researchers, available biomass streams and crops are analysed and property profiles are defined for the raw materials to be generated. Ultimately, these innovations focus not just on what is possible, but on developing economically viable supply chains that deliver high-quality products at scale and competitive prices.

Boosting bioplastics

One area where this approach is especially visible is in the development and production of bioplastics. This is a crucial field, as over a third of the current output of the petrochemical industry consists of plastics. As early as the 1990s, Dutch producers were creating bioplastics from potato starch. In 2011, the world's first commercial 100% PEF bottle was developed and marketed in the Netherlands. At the time of writing, Europe's first dedicated plant for commercial bioplastics is starting up in the north of the country, while a vibrant ecosystem of innovative start-ups and SMEs has sprung up around the country, benefiting from a network of pilot and lab-scale production facilities for product development and upscaling production.

This activity will be further accelerated in coming years, thanks to the recent launch of an ambitious, government- and private-sector-sponsored BioBased Circular programme. In this programme, partners across the agrifood, forestry, recycling, and chemical manufacturing sector are developing five industrial-scale manufacturing chains. € 338 million of public funding (along with even larger private investment commitments) is available for R&D, demonstration, and flagship projects in areas such as lactic acid bioplastics, sugar beet biopolyesters, bio-based resins for construction and furniture, coatings and insulation from plant residues, and biodegradable biopolymers from wastewater.

The programme explicitly aims to help set up an entirely new, internationally competitive sector producing bioplastics for applications in packaging, textiles, coatings, and construction materials. The goal is to redesign materials using biobased sources, ensuring they are biodegradable and competitive with fossil materials in price and quality.

Biobased building

Another major application for biobased materials, often derived from fibrous crops and residues, is in creating biobased building materials. A government-backed, 200 million-euro innovation programme currently drives the use of renewable biomaterials in Dutch construction. The programme's overall aim is that, by 2030, at least 30% of all new-build homes in the Netherlands will be constructed using a minimum of 30% biobased materials. Examples include insulation made from straw or wool, façade panels made from hemp, timber-frame construction, bricks from 'hempcrete', and the use of flax, miscanthus, reed mace, and horticultural residues. The programme covers the entire supply chain: starting with collaboration with farmers to encourage local cultivation of suitable crops, through to securing the commitment of suppliers of building materials to scale up the production of biobased materials and supporting the construction industry in using them.

SAM Panels manufactures 100% biobased, circular panels made from locally sourced cellulose fibres (such as grass, hemp, recycled paper, and even cow manure) using only water, pressure, and heat. The panels contain no synthetic binders or toxins, are fully recyclable, and are suitable for use in construction, interior walls, furniture, and more.

Avantium is a pioneer in renewable and circular chemistry. Known for developing the 100% biobased PEF bottle for Coca-Cola, the company now operates the world's first commercial FDCA plant for PEF plastics, with commercial sales starting in 2026. The company partners with major firms in packaging, textiles, and chemicals, and has already signed its first licensing agreement abroad. Other Dutch innovators in bioplastics include Paques Biomaterials, which produces fully biodegradable bioplastics by cultivating bacteria on organic waste and wastewater streams, and Corbion, which manufactures a high-performance, renewable, and compostable bioplastic through fermentation of sugars from agricultural or food industry wastes.

Across the Netherlands, a network of top-tier labs and pilot-scale production facilities is accelerating the biobased transition. Wageningen University & Research offers a Biobased Products Innovation Plant and open-access production labs for new materials and composites. At TNO, advanced pilot and demonstration lines for biomass processing are available, including specialty seaweed platforms. The newly opened KRIMPPP hub in Arnhem provides flexible, shared infrastructure and expertise to help innovators scale up biobased products from concept through pilot to market.

The Netherlands is home to several companies who have developed advanced technological processes to convert diverse, low-value biomass or waste into higher-value chemicals. BioBTX uses a patented pyrolysis-based process to convert end-of-life plastics and agricultural residues into essential, drop-in chemicals. ChainCraft's patented fermentation technology (pictured above) allows the company to upcycle food residues and other organic waste streams into fatty acids, which can be used as alternatives to petroleum and palm oil-based chemicals in animal nutrition, agriculture, chemicals, lubricants, and food and flavours. Meanwhile, BlueCircle Olefins is developing Europe's first production facility for 100% circular olefins, converting methanol into key chemical building blocks for plastics, paints, and many products.

Five benefits of doing business with the Netherlands

1. Quality and reliability

We combine first-class technical expertise and innovative strength with a commitment to delivering high-quality, reliable products and solutions. Working with Dutch technology means you can be certain of compliance with the highest (European and international) standards.

2. An international outlook

We have been doing business abroad for centuries and understand what it takes to work successfully across borders and cultures. We are also regularly ranked as having the world's most proficient non-native English skills.

3. High-tech excellence

The Netherlands has a long history in high-tech innovation. In terms of the number of patents per capita, we rank fourth in the world and we are home to world-class research institutes in clean energy technology, global players in semiconductor technology and excellent machine manufacturers.

4. Joint innovation

We strive to create flexible, fast-moving networks of specialist companies and research institutes and are proud of the dozens of 'field labs' in which such networks translate fundamental research into innovative solutions and test them in real-life pilot environments.

5. Easy access to specialist expertise

We have organised our clean energy expertise into national consortia. These networks offer fast and easy access to the right technology providers, researchers or combination of specialists. We all pursue a common goal: solving global challenges together.

Dutch biobased expertise

Looking for specific expertise or technological solutions? In this section, Dutch businesses and other organisations in the Dutch biobased sector introduce themselves and their portfolios. Consult the table on p. 26/27 to identify possible partners in your future biobased endeavours.

Delivering biobased solutions

The Netherlands has long been at the forefront of the global transition towards a biobased economy. Over the past decades, Dutch companies have earned a strong international reputation in using sustainable biomass for energy and fuels. With this new edition of our guide on the Dutch biobased sector, we take the story a step further, showcasing how Dutch innovation is now shaping the future of biobased chemistry and materials.

Where biomass was once viewed primarily as a renewable energy source, it is increasingly recognised as a strategic feedstock for high-value applications. From advanced biochemicals to next generation polymers and sustainable building materials, Dutch companies are delivering solutions that not only cut greenhouse gas emissions, but also unlock entirely new markets worldwide.

The strength of the Dutch position lies in a unique combination: world class knowledge institutes, a dynamic entrepreneurial ecosystem, and strong public private partnerships. Together with RVO and ChemistryNL, Platform Bio-Economie (PBE) fosters this innovation by connecting companies to international opportunities, providing the regulatory and policy frameworks for growth, and ensuring that sustainability remains at the heart of every development.

In this guide, you will discover a diverse mix of companies: established leaders with a proven track record alongside a new generation of pioneers introducing fresh technologies, services, and business models. This blend reflects the continuity, depth, and innovative power of the Dutch biobased sector.

As global markets accelerate the search for sustainable alternatives to fossil-based resources, Dutch businesses are ready to deliver. Whether in energy, fuels, chemicals, or materials, the Netherlands is positioning itself not merely as a participant, but as a leader in the international biobased economy.

We are proud to present these companies in this guide and invite you to explore the innovative strength the Netherlands has to offer.

John Bouterse
Director, Platform Bio-Economie

PLATFORM BIO ECONOMIE

									REFINERY/VALORISATION						
	BIO-RESOURCES	PORT LOGISTICS/INFRA	TECHNOLOGY PROVIDER	EPCS	ADVISORY/CONSULTANCY	KNOWLEDGE CENTRE	FINANCE	HUMAN CAPITAL/EDUCATION	ALTERNATIVE FUELS/ENERGY	CIRCULAR BIOBASED MATERIALS & CHEMICALS	RECYCLING/REUSE	CCU	H_2	ASSOCIATION	PAGENUMBER
Adverio BV				●	●				●						28
Alcogroup	●								●			●			28
ARA Bulk BV		●													29
Avantium	●		●							●	●	●			29
BioBased Circular (BBC)	●	●			●	●	●	●		●	●				30
Biobased Energy Solutions BV					●										30
BiogasJG BV									●	●					31
Blackwood Technology BV			●	●					●						31
Bright Renewables	●		●												32
BTG-Bioliquids BV	●		●						●	●					32
Byosis	●		●	●					●						33
Chemistry NL						●								●	33
Chemploy BV					●			●	●	●	●	●	●		34
ChemXpro BV			●	●	●				●	●	●	●	●		34
Colsen			●	●	●				●	●	●				35
Colubris Cleantech	●		●												35
Connex BV	●					●			●	●					36
Cryonorm Systems BV									●			●	●		36
Darlin Ingredients	●								●	●	●				37
Den Ouden Organic	●								●	●	●		●		37
Dutch Sustainable Development BV			●												38
Edvisory				●											38
Enki Energy			●	●					●						39
ETB Global	●		●						●	●					39
Eurostrut BV			●												40
Flexxolutions GFS BV									●						40
Fluor				●	●										41
FME		●	●										●	●	41
Gastreatment Services BV			●	●											42
GIDARA Energy			●						●	●	●				42
Godavari Biorefineries BV	●		●						●	●		●			43
Green Serendipity	●				●	●		●		●	●	●			43
Hinterland Management B.V.	●	●			●				●	●	●				44
HoSt Bioenergy	●		●												44
Hovyu BV			●		●										45
HyGear	●		●		●				●		●		●		45
Ingenia Consultants & Engineers BV					●				●	●	●	●			46
Invest International BV							●								46
KARA Energy Systems			●												47
Komercon	●		●		●		●		●	●	●				47
KROHNE Nederland			●												48

									REFINERY/VALORISATION						
	BIO-RESOURCES	PORT LOGISTICS/INFRA	TECHNOLOGY PROVIDER	EPCS	ADVISORY/CONSULTANCY	KNOWLEDGE CENTRE	FINANCE	HUMAN CAPITAL/EDUCATION	ALTERNATIVE FUELS/ENERGY	CIRCULAR BIOBASED MATERIALS & CHEMICALS	RECYCLING/REUSE	CCU	H_2	70ASSOCIATION	PAGENUMBER
Labee Group Moerdijk	●								●	●	●				48
Lek/Habo			●	●					●						49
Looop Renewables BV	●	●			●	●			●	●	●				49
Mavitec BV			●	●											50
MNEXT						●		●							50
MVO The Netherlands						●								●	51
Nature's Principles BV	●		●		●	●				●					51
Netherlands Enterprise Agency					●										52
Nettenergy BV			●						●	●			●		52
New Cosmos - BIE			●												53
Nijhuis Industries			●		●				●						53
NoPalm Ingredients BV	●		●							●	●				54
Nordsol			●						●						54
Oerlemans Plastics	●									●	●				55
Paques Biomaterials	●									●					55
Partners for Innovation					●										56
PeelPioneers BV	●									●					56
Perpetual Next BV	●		●			●			●	●	●				57
Platform Bio-Economie						●								●	57
Port of Amsterdam		●													58
Port of Rotterdam		●													58
QM Environmental International BV			●												59
Relement BV	●		●							●					59
Rodenburg Biopolymers										●	●				60
Rolls Royce Power Systems			●						●						60
RWE Generation NL									●			●			61
SeaWorks BV	●	●			●										61
SkyNRG	●				●	●			●						62
Stahl										●					62
Sunoil Bio Fuels BV	●								●		●				63
SYNOVA			●						●	●	●				63
TechnipFMC			●						●	●					64
TNO						●									64
Torrgas	●		●		●				●	●	●	●	●		65
TransitionHERO BV					●				●	●	●	●	●		65
Van der Kooy						●			●	●					66
Vertoro	●		●						●	●					66
ViVoChem BV		●	●						●	●					67
Wiefferink BV			●												67
WUR	●				●	●			●	●	●	●	●		68
Yilkins			●						●	●	●		●		68

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Adverio's focus is on engineering (EPCM) and realisation of the energy projects based on processing of organic (waste) streams into the most suitable form of renewable energy, from initiation till realisation. Our philosophy to the client is about finding the technical partner you can trust and work throughout the entire process and long after the start-up. Choosing the right partner will ultimately guarantee the best return on client's investment.

Adverio's objective is finding practical solutions and innovative technology which is business driven, but is above all about people, about building relationships and working towards optimum satisfaction.

Over 30 years of experience has taught us what works – a collaborative approach to engineering and project management that shares clients vision to build renewable energy projects, whether a small scale waste-to-energy project or a large scale energy plant. We say what we do and we do what we say and adhere to a fast and direct interaction. We don´t just work for you, we work with you. Based on Design to Built. Adverio is a network company. Through our international partnerships we have a global presence. Adverio provides a full spectrum of service for clients all over the world. Adverio has worked in China, Korea, Russia, Middle East, Africa, South America and most of Europe.

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With headquarters in Brussels and operations on several continents, Alco (short for Alcogroup) is one of the biggest producers and distributors of ethanol for fuel in Europe. Globally we provide ethanol to various industries: from cosmetics to pharmaceuticals, biochemistry, food and beverage. Our largest biorefinery is based in Rotterdam, which is also the largest bio-ethanol facility in Europe. Alco is also a very large producer of biogenic CO_2 (as a result of fermentation) that is being captured and used in other sectors to replace fossil-based CO_2.

Consumers, farmers or horticulturists, many people on this planet use our high-quality products every day. Our products contribute to a more sustainable way of living. One example: less fossil fuel and less greenhouse gas emissions from transport. We produce bioethanol with up to 100% lower greenhouse gas emissions than petrol. Our ethanol, when blended into petrol up to 10% is better known as E10. Millions of car drivers now lower their footprint choosing E10 in Europe, Canada and the US.
Reducing fossil fuel. Capturing carbon. Providing agile solutions.

Alco. Sustainable pioneers.

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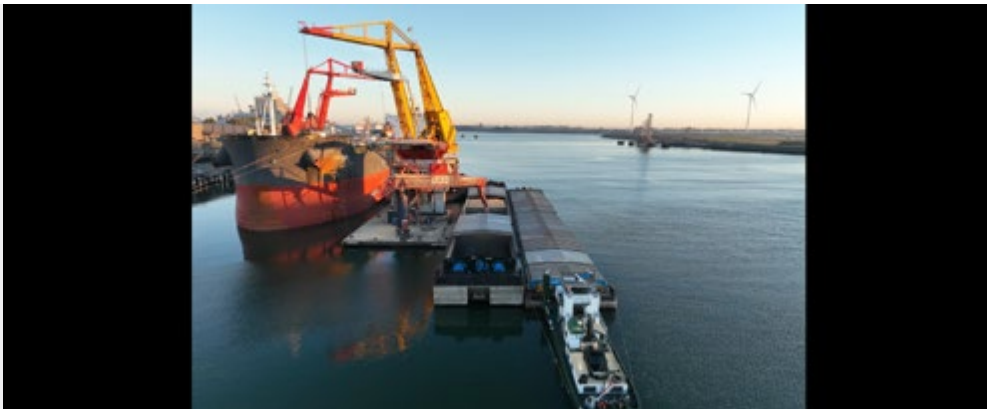

ARA Bulk is a part of the Interrijn Group, located in The Netherlands. Providing smart logistics means being on top of the game. It's about removing unnecessary and premature freight miles by balancing conventional storage and (floating) storage, transshipment, and transport over water.

Shipping with any of the 100 vessels inland only when needed, storing or warehousing when most efficient, and always keeping the overview. Our experience reaches from biomass and recycling materials to breakbulk and from agribulk to sugar.

ARA Bulk's Floating Storage is the solution for smart storage and stock management in or near a seaport. With a fleet of 40+ push barges, we offer the most economic storage solution in ports such as Amsterdam, Rotterdam, and Flushing (NL), Antwerp, and Ghent (BE), with 'board to board' transshipment, lowering cost from the moment of mooring in Europe.

Advantages of Floating Storage in the (sea) port:
- Flexibility
- Decreasing (transshipment) costs
- Geographically independent
- Possibilities in combination transport/storage
- Inventory management
- Just in time delivery
- Less pressure on permits.

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Our mission is to lead the transition from fossil-based to sustainable plastics and materials by using renewable feedstocks. From our headquarters in Amsterdam, a dedicated team of more than 300 passionate professionals works tirelessly to achieve this goal. Our state-of-the-art R&D labs in Amsterdam, three pilot plants in Geleen and Delfzijl, and our FDCA Flagship Plant in Delfzijl, the Netherlands, are at the forefront of developing technologies that transform renewable resources into valuable chemicals and circular plastics for consumer products. Among our achievements is Releaf® (PEF), a 100% plant-based polymer that exemplifies our commitment to sustainability, offering exceptional performance and full recyclability. With a wide range of applications such as packaging, textiles, and film, Releaf® boasts impressive barrier properties for CO_2 and O_2, leading to a longer shelf life of packaged products when compared to PET. Its higher mechanical strength allows for thinner packaging, reducing resource usage. This powerful combination of environmental features and superior functionality position PEF as the next-generation polyester. Our Volta Technology harnesses the power of CO_2 through electrochemistry. Avantium's electrocatalytic platform transforms this gas into a new carbon source for the chemical industry, enabling cleaner processes and reducing industrial emissions. By converting captured carbon dioxide and converting it into valuable products, Volta Technology supports a circular, carbon-smart future.

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BioBased Circular

BioBased Circular (BBC) is a national innovation programme (2024–2032) funded by the Dutch Growth Fund to accelerate the transition from fossil-based to renewable, circular materials. It brings together over 125 partners from industry, research institutions and government to develop and scale new value chains for biobased plastics, textiles, coatings, construction materials and chemicals.

BBC focuses on replacing fossil carbon with sustainable biomass from agricultural residues, side streams and recycled materials. Its goal is to create circular-by-design products that are reusable, recyclable, or biodegradable - minimising waste and keeping carbon in closed, sustainable loops.

The programme is structured around nine interconnected programme lines, covering sustainable feedstock sourcing, novel biobased building blocks, product development, recycling integration and demonstration projects. These efforts are supported by lifecycle and techno-economic analyses to drive effective, system-wide implementation.

In collaboration with RVO, BBC calls for projects in 2024 and 2025 have already led to several collaborative initiatives, with more underway. With €338 million from the National Growth Fund and over €550 million in industry co-investment, BBC aims to cut annual CO_2 emissions by up to 5.8 million tonnes, create 8,000+ new jobs, and position the Netherlands as a European leader in the biobased circular economy.

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BIOBASED ENERGY SOLUTIONS BV

Biobased Energy Solutions (B.E.S.) is on an international level involved in sustainable development projects. B.E.S. plays a role in different innovations, both large (centres of excellence) and small (private developments). B.E.S. reviews these projects on strengths and weaknesses and looks into possibilities to combine them with other developments. If optimisation is possible, B.E.S. develops a business case, including possible financing and more.

We are currently supporting a large-scale forest renewal project we have developed in Switzerland, where old wood is converted into electricity. We also take inventory in the reduction of the CO_2 footprint and convert it into tradable certificates.

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BiogasJG

BiogasJG is a Dutch company supporting biogas producers worldwide in optimising desulphurisation and enhancing methane production. We offer a comprehensive range of additives: both in-digester solutions and end-of-pipe products for gas cleaning. In cooperation with our partner laboratory, we provide biological analyses and expert support to improve the anaerobic digestion process.

To stimulate microbial health and increase gas yield, we supply specially formulated trace element mixtures and enzyme blends. Our portfolio includes both generic and tailor-made trace element solutions, developed to meet the unique requirements of individual installations.

A key product line is FeSfix, our iron (hydr)oxide-based desulphurisation additive (e.g. FeOOH, Fe_2O_3). These compounds react with hydrogen sulphide (H_2S) during digestion, preventing its formation in the biogas. The resulting sulphur compound is safely removed via the digestate. In addition to these additives and media, BiogasJG also supplies feedstocks and other support products. Our offering includes ammonia scavengers, anti-foaming agents, activated carbon, dry scrubber systems and our Metalox media. BiogasJG is your one-stop shop for improving the efficiency and reliability of anaerobic digestion systems.

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Blackwood TECHNOLOGY

Blackwood Technology is the leading torrefaction technology company in the world. Torrefied biomass (aka black pellets or biocarbon) can be used as a drop-in coal replacement in power plants, industrial boilers and steel plants. Torrefied biomass is also the preferred fuel type for SAF bio-refineries using entrained flow gasification and Fischer-Tropsch synthesis.

Blackwood's proprietary FlashTor® technology can be used for producing regular black pellets as well as for producing a more highly carbonised biocarbon (aka SuperBlack® pellets). The FlashTor® technology is proven, flexible and scalable. The technology has been successfully deployed at industrial scale in two black pellet plants in Thailand, which were jointly built with Blackwood's Thai partner TTCL Public Company.

The FlashTor® technology can process many different feedstocks, such as woody biomass and agro residues, and in different shapes (pellets, chips or sawdust).

Blackwood offers its international customers: test programs, sample volumes, feasibility & engineering studies, the supply of FlashTor® systems and maintenance & support services.

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Bright Renewables stands unique as the only company fully integrated in biogas upgrading, CO_2 and biomethane liquefaction, bio-CNG, and carbon capture.

Bright's PurePac systems upgrade biogas from any form of waste or biomass feedstock and are applicable in any industry. Due to a standardised, modular system, Bright is able to deliver a total range from small to large biogas upgrading systems suitable for any existing or new biogas plant type. Biomethane is flexible in its application. Likewise, is the produced biomethane in a PurePac which is suitable for injection in the grid, compression to bio-CNG and compression for the use in a virtual pipeline system. At a virtual pipeline, the gas is compressed to a high pressure enabling it to be economically and safely transported to a remote facility with grid entry point. This is an ideal solution when no pipeline or grid infrastructure exists at the production location.
For the separation of carbon dioxide (CO_2) to obtain biomethane, membranes with the highest selectivity are used. The 3-step membrane arrangement assures high biomethane quality with maximum methane recovery of >99.5%.

Biogas purification is a valuable and attractive alternative compared to using a combined heat and power (CHP) system that generates electricity and heat. Our system can be extended with a CO_2 recovery module to recover and liquefy the gaseous CO_2 that is produced during the upgrading creating an extra source of revenue.

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As BTG Bioliquids we replace fossil fuels by Fast Pyrolysis Bio-Oil (FPBO), an advanced biofuel that can be used directly as a renewable heating fuel to replace heating oil or natural gas, and that can also be converted into a drop-in fuel for transportation. The associated greenhouse gas savings are up to 93%. As a technology provider and product leader we are committed to the commercial deployment of our fast pyrolysis technology. We built the first commercial pyrolysis plant in the Netherlands (Empyro) in 2015 and are currently constructing two more plants in Scandinavia; one in Finland for Green Fuel Nordic and one in Sweden for Pyrocell.
The Empyro plant produces 20 million litres/year of pyrolysis oil using the pyrolysis process developed by BTG. The plant is self-sustaining and produces an excess of renewable electricity and steam as by-products, which are supplied to nearby factories.

The plant for Green Fuel Nordic will also produce 20 million litres of pyrolysis oil per year that will be used as a renewable heating oil. The plant for Pyrocell (operational in 2021) will produce around 25,000 tonnes of pyrolysis oil.
These developments show that our fast pyrolysis is proven at commercial scale and worldwide capacity is expanding. Further applications of FPBO are under development.

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Byosis stands for practical, feasible and customer specific solutions. Whether the input material is crops, agricultural residues, industrial waste, green waste, sludge, municipal waste or highly contaminated wastewater, Byosis offers solutions to recover the nutrients, remove ammonia and significantly improve the efficiency and capacity of your process. We strongly believe in and contribute to the circular economy.

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ChemistryNL represents the Dutch Topsector Chemistry and serves as both facilitator and leader in chemical innovation. Operating under governmental mission-driven Topsector and innovation policy (MTIB), ChemistryNL connects business, academia, research institutions and government to address global challenges in energy, circularity, climate, health, food and safety with chemistry solutions. Multi-year research agendas and objectives ensure the Netherlands remains a leading chemical innovator. The chemical sector holds deep expertise essential for defence, high tech, health and food, and for the energy and resource transition. While the industry itself must shift to sustainable feedstocks and energy, it also helps other sectors decarbonise and circularise. ChemistryNL expands this societal role – leveraging chemistry as a motor for sustainability, circularity and economic growth. ChemistryNL provides vision through key focus areas and services that empower innovators, while driving concrete, boundary pushing projects across five program councils: Conversion & Process Technology; Chemical Sensing & Enabling Technologies; Chemistry of Advanced Materials; Chemistry for Life; and Chemistry for Energy. These councils steer research agendas and assess proposals, with guidance from a cross-sector Strategy Board to align efforts with national goals and the European Green Deal. With a professional, mission-driven approach and a rich portfolio of initiatives, ChemistryNL plays a pivotal role in shaping a more sustainable and competitive chemical industry in the Netherlands. Through workshops, newsletters and high-profile events, it cultivates a vibrant chemical innovation ecosystem that amplifies the country's standing in global chemistry. ChemistryNL welcomes partners ready to drive chemistry forward.

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Chemploy is a Staffing and recruitment company specialised in the chemical, food, and life sciences industries. We connect skilled engineers and qualified support staff with exciting projects and employers throughout Europe. True to our name—Promoting Chemistry in Employment—we bring together talent and opportunity with energy and purpose.

At Chemploy, we believe in:

- A strong set of cultural beliefs
- Growth and development
- A network of like-minded professionals

Our consultants and professionals work on topics ranging from chemical engineering, process safety and functional safety, chemistry, and process R&D to process control engineering, materials science, sustainable technology development, and mechanical engineering.

We are active in the entire chemicals domain with a particular focus on hydrogen technologies as well as in Alternative Fuels/Energy, Circular Biobased Materials & Chemicals, electrification and Recycling/Reuse projects.

Our culture? Think coffee, stroopwafels, Braai, the Efteling, campfire storytelling, and a shared drive for sustainability and innovation—not necessarily in that order ;-)

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ChemXpro is an engineering and consultancy company specialised in delivering fit-for-purpose solutions for the chemical, food, and life sciences industries. Our work focuses on process engineering, plant optimisation, and project execution with a strong commitment to our #SFTC philosophy: Solve For The Customer. First time right, as simple as possible, as complex as necessary

We are actively involved in various hydrogen-related projects, including the development of processes and equipment for Liquid Organic Hydrogen Carriers (LOHC), electrolysis, hydrogen storage and transportation, hydrogenation processes and safe hydrogen storage, transport and release. Our team supports clients from concept to implementation, focusing on scalability, efficiency, and safety.

Beyond hydrogen, ChemXpro plays an active role in the transition towards Alternative Fuels/Energy, Circular Biobased Materials & Chemicals, and Recycling/Reuse technologies. We help our clients develop, scale up, and optimise new and existing processes that enable circularity and carbon reduction. With our combination of engineering expertise and operational plant experience, ChemXpro ensures practical, lean, and effective solutions that support the energy and materials transition.

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Colsen is an innovative technology supplier for municipal and industrial wastewater treatment, and animal manure treatment. With offices in the Netherlands, Spain and South Africa, and a network of agents across the world, we are able to deliver local support for every project. Depending on your need, we offer tailor made support. This varies from independent consultancy, technology & engineering packages to turn-key delivery of plants or key parts of your installation.

Across our markets, we have some premium technologies that diversify us from our colleagues.

- In municipal wastewater treatment we offer side stream treatment for nitrogen removal with NAS®-ONE relying on annamox bacteria or AMFER® for nitrogen recovery though stripping/ scrubbing.
- Also, in municipal sewage treatment we offer thermophilic sludge digestion for Class A biosolids production, biological biogas desulphurisation (BIDOX®) and phosphate recovery as struvite (UPHOS®).
- In industrial WWTP we offer total solutions for mainly food and beverage processing industries and other wastewater with organic pollutions.
- In manure treatment we offer total treatment of manure, with biogas production, nitrogen recovery and treatment to dischargeable water.

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Colubris Cleantech is a Dutch company with experience in separation and (waste) water treatment technologies since 1984. We offer a complete range of solutions and processes for water, waste and bioresource.

Thanks to our longstanding innovation and research, we can design and construct a biorefinery for you, which allows you to recover and valorise valuable organic waste or side streams. Keeping the high quality and original functionality, the recovered products can be used as ingredients for various food and beverage applications, adding taste, aroma, protein, colouring and texture. Whatever leafy, organic, vegetable or fruit leftovers or offcuts you have, we will tailor the design of the biorefinery process according to your specifications of the recovered product.

Our biorefinery process is clean, uses a minimum amount of energy and water and produces zero waste. It is completely aligned with the core of sustainability and circular economy.

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Connex is a renewable feedstock trader and service provider. We supply renewable waste and residues for the production of sustainable fuel. Our business is to build strong and traceable supply chains, by finding the right quantity and quality source and lead the way in delivering reductive solutions. We offer sustainable solutions on three levels: supply, service, and control.

Supply: We collect, transport, and trade renewable feedstocks globally, focusing on waste and residues governed by waste and veterinary legislation; advanced feedstocks like Food Waste Fats, waste and residues like Animal Fats CAT.1 & 2 and UCO, other feedstocks like Animal Fats CAT.3 and different (technical) crop-based oils.

Service: We offer operational services like sampling, blending, cleaning, market research, and logistical services by truck, train, barge and ships. To ensure optimal quality we sample and double-check the product, blend it into our customers' preferences and optimise the blend to create maximum value for the feedstock suppliers. This way, we can always meet all demands in terms of quality and quantity.

Control: With our ISCC EU and INS certifications, we are accredited to deliver all necessary sustainability documents to our clients. Additionally, we actively participate with agencies like the Dutch Emission Authority and RVO and contribute to market groups like MVO, NOFOTA and EWABA to be updated with all new market regulations and sustainable practices.

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Cryonorm based close to Amsterdam, the Netherlands is a leading designer and supplier of tailor made LNG or LBG (liquefied biogas)systems and vaporisers. The LNG systems are developed to meet the highest international standards as well as applicable regulations.

The LNG systems include:
- Marine LNG fuel systems
- LNG bunkering systems
- Liquefaction of natural or biogas to LNG
- LNG and LCNG filling stations
- LNG regasification systems for industries and power generation

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Darling Ingredients repurposes and recycles millions of tonnes of materials from the animal agriculture and food industries helping to nourish people, feed animals and crops, and fuel the world with renewable energy. We help move the world towards a more circular economy.

Customers use the fats and proteins to produce numerous valuable products, such as animal feed, petfood, fertilisers and renewable fuels.

We transform sustainable feedstocks, such as animal fats, used cooking oil and food waste, into energy solutions to help decarbonise the world. Through our 50/50 joint venture Diamond Green Diesel, we are one of the largest producers of renewable diesel and are one of the largest sustainable aviation fuel producers. We are also a leading producer of low-carbon biogas in Europe.

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At Den Ouden Organic, we valorise green residual flows into renewable products, helping to pass on a more sustainable world to future generations. We are the largest compost producer in The Netherlands, valorising about 500.000 tonnes of leaves, grass and (pruned) wood (chips) each year at fifteen production facilities. We process green waste from more than 100 municipalities in The Netherlands and turn them into high-value inputs for three markets: growing media, renewable energy and bio-based raw materials for construction materials.

Our RHP-, Keur- and Vlaco-certified compost replaces peat in potting soils and other substrates, while part of the wood flows is used for the production of green energy. In this way we contribute to the energy transition. With decades of experience in producing substrates suitable for climate-adaptive planting sites, we are a reliable partner for effective and sustainable management of public spaces. High-quality, renewable soil improvers boost soil fertility and stimulate plant growth. By actively contributing to the Covenant on the Environmental Impact of Potting Soil and Substrates, we accelerate the national peat transition.

We test and improve products, meeting new regulations and the growing need for circular materials at home and abroad. In everything we do, we deliver solutions with circularity at the core.

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DSD have been working on the Direct Processing with Betaprocess concept (DP+Beta) since 2015, together with Wageningen University & Research. It includes three process steps:

- Pre-treatment (reception, destoning, washing, cutting, Betaprocess)
- Fermentation
- Distillation

DP+Beta has proven itself during recent test phases, is robust and reliable. Various types of biomass have been tested during recent test phases, for the time being sugar beet is the most attractive and efficient for delivering a profitable business case. A biorefinery which 'convert' sugar beets into bio-raw materials that can be used in chemistry is a complex process. Via DP+Beta, the molecules can be opened from wet biomass (<25% dry matter), making the ingredients available (liquefaction) for subsequent processing processes. The processing leads to two potential output streams: 1) bioethanol and/or 2) industrial grade sugars. Besides these products CO_2, water, digestate is produced, to be used for several purposes.

\DP+Beta is very energy efficient process and results in a low carbon footprint. Small scale biorefinery is therefore attractive for rural areas, to attract employment, but also for the local farmers and their families. This brings Local4Local closer to the farming community and takes care of a fruitful green future.

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Edvisory supports companies with project development, EPC project management advise and business development. The focus is in the markets for renewable energy (waste-to-oil, waste-to-chemicals) and its interface with the oil & gas / petrochemical markets.
The forms of support can vary, with the following key possibilities:

- Market studies
- Business development
- Management support and project execution strategy
- Project management support
- Training and workshops for effective project management, using the Edvisory methodology.

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Enki Energy is an expert on small-scale anaerobic digestion. Enki Energy developed a compact, anaerobic digester with an advanced process control system (patent granted). The digestion process is fast. Small-scale installations are available for many applications. The biogas produced is used to generate heat or electricity on site, or it can be used for cooking.
The compact systems of Enki Energy are well suited for small and large waste streams. They are used by restaurants, neighborhoods and food processing industry. Anaerobic digesters have been placed inside (apartment-)buildings. Larger installations are mostly placed outside existing buildings.
Enki Energy selected and grew a (proprietary) unique bacterial culture. All micro-organisms are of natural origin. Enki Energy builds (demonstration) digesters. Furthermore, Enki Energy executes feasibility studies and demonstration projects.

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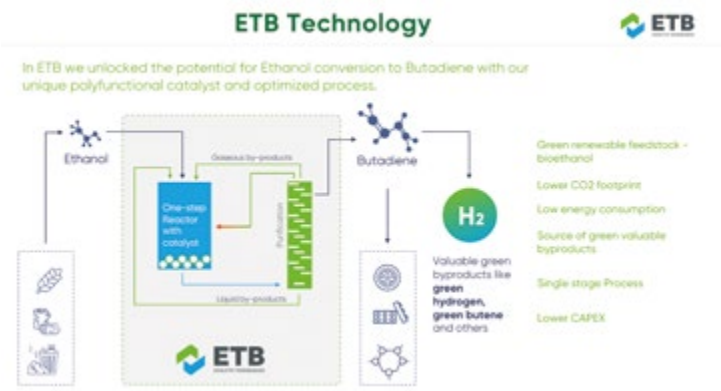

ETB Global is a cleantech company based in the Netherlands, focused on the development and commercialisation of sustainable technologies for the chemical industry. The company's core innovation is a patented single-step catalytic process that converts renewable ethanol into high-purity bio-based butadiene, a key building block for rubbers and plastics. This novel route significantly reduces greenhouse gas emissions, energy consumption, and reliance on fossil-derived feedstocks, while remaining compatible with existing industrial infrastructure.
As part of our main objectives is to scale up this technology and establish the entire value chain needed to bring renewable butadiene to market at commercial scale. We are currently based at the Brightlands Chemelot Campus, where we benefit from strong innovation networks and industrial partnerships.

To date, we have secured around €5 million in non-dilutive public funding and are advancing toward the construction of our first demonstration plant. At the same time, we are actively engaging with stakeholders across the supply chain, from ethanol suppliers to polymer manufacturers, to brandownders to ensure that our solution is not only technically viable, but also strategically positioned for large-scale adoption.

By offering a drop-in, low-CO_2 emission alternative to one of the most carbon-intensive monomers in the chemical industry, namely Butadiene, we aim to support global decarbonisation goals while creating long-term value for partners and customers.

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Eurostrut
Cable Management Systems & Solutions

Eurostrut designs and supplies high-quality cable support systems and mounting solutions for sustainable energy projects in the Netherlands and abroad. Our systems ensure safe and efficient routing of power, control, and data cables in technically complex environments. We play an essential role in the infrastructure of bio-based and circular energy installations, such as the bio-energy facility of Indaver in Doel (Belgium) and the Sustainable Fuel Plant of SFP Group in Farsum (Netherlands), where residual waste is transformed into renewable fuels.

We actively contribute to the energy transition—not only through the projects we support, but also through our operations. With the support of our logistics partner, we offer emission-free deliveries wherever possible, using electric transport. Eurostrut is certified on the CO_2 Performance Ladder and has been awarded a Silver Medal by EcoVadis in recognition of our commitment to sustainability, ethics, and responsible business practices.

With over 20 years of experience, a wide product range available directly from stock, and a dedicated team, Eurostrut is a trusted partner for engineers, EPC contractors, and installation companies. We support sustainable projects from design to implementation and maintenance.

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FLEXXOLUTIONS
innovations in technical textile products

Flexxolutions, an innovative company with highly enthusiastic and skilled employees, offers the best products in the field of technical textiles. We provide sustainable and innovative solutions for covering silos and storing (bio)gas, liquids and solids.

These solutions and products are used in sectors such as biogas, (greenhouse) horticulture and agriculture. We also offer disinfection mats for the industrial, transport and medical sectors. Driven by our passion for innovation, we want to deliver the best quality to our customers. We can guarantee this thanks to our strong focus on research and development and having all disciplines in-house (design, production and assembly).

Our strength lies in the combination of an enthusiastic group of employees with a passion for technology and a range of innovative products that contribute to a better world. For example, sustainably generated biogas can be stored in our gas-tight roofs. Our disinfection mats keep diseases outside in areas where crops grow are grown or food is produced, and tank covers drastically reduce ammonia emissions.

All of this and seeing the individual wishes of our customers become reality, makes us happy. With our head office in the Netherlands, our production facility in Germany and our international partners, we have been successfully completing projects worldwide for more than 14 years. Curious? Take a look at our website or give us a call.

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Fluor is one of the world's largest publicly-traded engineering, procurement, construction (EPC) and maintenance companies. We work with Clients in diverse industries globally to design, construct and maintain their capital projects.

We promote a caring, preventative culture where no one gets hurt. Our sustainability mission is to conduct business in a responsible manner to the benefit of current and future generations. Clients rely on us to help address sustainability challenges and issues, including the need to improve energy efficiency, reduce greenhouse gas emissions and to design and build more environmentally friendly, less costly facilities. Our Clients expect ethical conduct; high levels of employee knowledge and expertise; excellence in health, safety and environmental matters; and an aggressive supply chain and procurement methodology.

With offices located in Hoofddorp, Bergen op Zoom, Geleen and Rotterdam. We successfully completed projects in Europe for more than 75 years using a multi-office execution approach.

Our comprehensive solutions span the entire project life cycle and deliver capital efficiency. Industries served includes Advanced Technologies & Life Sciences, Oil & Gas, Refining, Chemicals and Petrochemicals, Gas Processing & Underground Gas Storage.

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FME is the Dutch employers' organisation in the technology industry. The 2,200 affiliated companies include technology start-ups, trading companies, small and medium-sized industrial enterprises as well as large industrial conglomerates. Our members are active in the fields of manufacturing, trade automation and maintenance in the metal, electronics, electrical engineering and plastics sectors.

Around 400 members are active in the renewable energy sector and 130 members in the hydrogen sector. Together with our members we coordinate and participate in multiple hydrogen projects in the Netherlands and in an international setting.

FME members employ a total of 220,000 people, have a combined turnover of € 91 billion and their exports total € 49 billion.

We connect and mobilise companies, knowledge institutes, end users and investors in order to find solutions to the global challenge for a greener future. Please connect with us if you are looking for a specific company, product or service. Let's work together!

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GtS Future Energy

Gastreatment Services (GtS) is an engineering firm engaged in gas treatment in the broadest sense of the word. GtS has more than 50 years of in-house experience in the field of the natural gas and biogas processing and utilisation. This enables us to design, build and put into operation both standard and complex, custom-made installations. GtS has developed unique purification systems for the treatment of landfill gas, digester gas and biogas.

GtS provides advice, project management, procurement and the realisation of projects in the petrochemical and environmental field. Aside from gas treatment systems, GtS offers the choice from different flare installations, from open to closed flare systems in line with the NER regulations.

GtS produces all the necessary software inhouse. This allows GtS to log in remotely and monitor and adjust all installations and make adjustments where necessary. This is done on a regular basis, so that everything can continue to run as optimally as possible, in collaboration with the operator of the project.

Most of the products GtS developed for biogas treatment are also suitable, sometimes after some adjustments, for Geothermal Energy.

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GIDARA® ENERGY

GIDARA Energy is a leading technology partner in the energy transition, specialising in the conversion of non-recyclable waste into sustainable fuels and circular chemicals. Utilising its industrially proven HTW® gasification technology, GIDARA Energy delivers scalable, cost-effective solutions that address the global feedstock gap and accelerate decarbonisation. With a steadfast commitment to sustainability, innovation, and collaboration, GIDARA Energy empowers industries and communities to unlock the value of waste, driving measurable impact for a cleaner, more sustainable future. For more information, please visit our website.

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Godavari Biorefineries BV is the European subsidiary of Godavari Biorefineries Ltd. We are responsible for the sales and business development in Europa and working on collaboration in partnerships with European companies. Godavari Biorefineries Ltd of the Somaiya Group is one of India's leading sustainable biochemical companies. A biorefining company with inputs from Sustainable and Renewable Resources - 1st and 2nd Generation.
Our Core Focus is on Realising a Sustainable Value Chain & Circular BioEconomy. We are producer based on sugar cane with our products from sugar, as bioethanol, renewable energy, biogas, biofertiliser, and range of specialty biochemicals for European and international markets.
Our products have applications in markets such as:

- aromatics,
- pharmaceuticals,
- cosmetics,
- coatings and resins,
- and food & fragrance markets.

We are expanding into bagasse-based chemistry with cellulose & derivatives, lignin, and bio-composites. We are committed to take care of society and environment. We work from the soil with regenerative agriculture practices with our farmers to grow sustainable and renewable biomass for our biorefinery. As we work in rural and urban communities to open up new livelihoods, empower women, and create access to education and health. Our Goal is to support companies who are looking for a Sustainable renewable Biobased products and work together to realise net-zero ambitions.

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Green Serendipity is a globally active consultancy and innovation agency specialised in regenerative material such as biobased, biowaste, CO_2based, recycled and/or compostable solutions for retail packaging, products, coatings and medical disposables. There is in-depth knowledge of packaging and packaging material value chains, combined with a broad and extensive international network. As an independent advisor (not tied to any material producers), Green Serendipity works with retailers, brand owners, manufacturers, designers, governments, research institutes and universities to accelerate the transition toward a circular economy.
A key initiative of Green Serendipity is the Bioplastics Hub - the first cleantech innovation and knowledge hub in the world fully focused on biobased materials. Located in Amsterdam and accessible online, the Bioplastics Hub offers hands-on insight into renewable materials, value chains, certifications, end-of-life solutions, microplastics prevention, and various recycling technologies. It functions as a matchmaking and consultancy platform that fosters collaboration across the bioplastics value chain. The activities of the Bioplastics Hub are powered by the Dutch Government (RVO).

Services include:

- Strategic consulting on sustainable materials for retail packaging and FMCGs
- Development of circular packaging concepts
- Innovation and co-creation sessions (physical and online)
- Educational programs, workshops, and international events.

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Hinterland

Hinterland is a bespoke sustainable investment development and management firm aiding companies, investors, and asset owners in maximising their impact and sustainable business value globally. It supports biomass, bioenergy, and other renewable energy technologies during development, investment, and operational periods. Hinterland provides tailored due diligence assessments, risk mitigation strategies, and operational oversight. Additionally, it addresses biomass sustainability, governance, and stakeholder management.

Examples of Hinterland projects include the transition from coal to biomass at IPPs in Mauritius, the development of an industrial wood pelletisation portfolio for export in Vietnam, the production of wood pellets for clean cookstoves in Rwanda, and the conversion of encroaching bush to biomass fuel and biochar in Namibia.

Founded by Maarten Gnoth, a business development and sustainability executive with over 25 years of international experience, Hinterland excels in renewable energy, biomass chipping and pelletisation, biomass supply chain management, biochar, and environmental and social responsibility within the energy sector. Maarten has extensive expertise in stakeholder management, board roles in joint ventures, and management of industrial pellet plants and wood chipping facilities. His proven ability to initiate and evaluate projects encompasses technological, financial, economic, and social aspects.

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HoSt BIOENERGY SYSTEMS

HoSt is a major turn-key supplier of bioenergy systems. Offering a total bioenergy plant solution for the anaerobic digestion, combustion, and gasification of organic biomass and waste streams, HoSt successfully realised hundreds of bioenergy projects worldwide. Our biomass energy plants contribute to ensuring the success of a circular economy by producing renewable energy, solving waste management challenges, and creating valuable end-products from organic waste. The expertise of HoSt focuses on the technological development and innovation of the processing of a broad range of biomass and waste streams. Biogas plants, biogas to-biomethane upgrading systems, biomass heat and power plants, biomass boilers, and gasification plants are offered. All can be adapted and supplied in different sizes, capacities and for various industries and available feedstock. Taking care of the entire process is part of the total solution that comprises of engineering, supplying, constructing, commissioning, and 24/7 service and maintenance. HoSt can also perform feasibility studies, process analysis and optimisation, laboratory tests, obtaining permits, and project development and engineering activities. Together with HoSt's international offices and partners, and having a strong focus on research and development, our engineers are developing more and more waste-to-bioenergy solutions that are tailored to local customer requirements.

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Founded in 2018, Hovyu combines deep expertise in gas treating with a strong commitment to sustainable innovation. Our core focus is CO_2 removal from various sources, including industrial point-source emissions (e.g., waste and biomass incinerators), direct air capture (DAC), and biogas upgrading. The latest one being a core activity of our portfolio. With a foundation in research and innovation, we continuously develop cutting-edge solutions tailored to real-world challenges.
Our latest breakthrough, the Hyperion technology, enables efficient CO_2 removal from gas streams with concentrations ranging from 1% to 40%, while maintaining low energy consumption. In biogas upgrading, Hyperion ensures deep CO_2 removal and raises the Wobbe index of biomethane above 46.5 MJ/Nm³—eliminating the need for fuel blending—while keeping methane losses below 0.04%.
Hovyu delivers smart, cost-efficient turnkey systems customised to each project's needs and compliant with strict Health, Safety, and Environmental (HSE) standards. Our client-centric approach and experienced team allow us to optimise performance across diverse applications, with a special focus on enabling clean, high-quality biomethane production.

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Hygear is making high-purity hydrogen accessible by building decentralised hydrogen plants across the industry. HyGear has emerged as the global market leader in on-site hydrogen production, purification, and recycling, recently enhancing its portfolio with innovative carbon capture systems.
Our systems utilise renewable natural gas for steam methane reforming (SMR) or water for electrolysis, integrating hydrogen production from biogas and carbon capture solutions to produce the most sustainable hydrogen.
As an expert partner in major international research projects, HyGear boasts exceptional laboratories, testing, and production facilities in Arnhem. We develop, manufacture, and service on-site plants, boasting approximately one hundred active HyGear installations worldwide.
Our long-term clients include leading industrial organisations in the global markets for glass, metallurgy, food hydrogenation, chlor-alkali, semi-conductor, and transport.
With sales offices in The Netherlands and North America, and a production location in Poland, HyGear provides global support to its customers, supported by locally based service teams around the world. We are proudly a part of the HoSt Group, a large and rapidly growing family company established in 1991 offering high-tech renewable energy systems.

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Ingenia: 'We get out what's in it'

In a world where raw materials are running out and the pressure on the climate is growing, waste is no longer an option. The future demands smart solutions – solutions that combine technology, sustainability and a sense of reality. That is what Ingenia stands for.

We are Ingenia: an independent engineering and consultancy firm, in Eindhoven since 2002. With a multidisciplinary team of engineers, consultants and project managers, we help our clients to do more with less. What others see as residues, we see as raw materials. What often ends up as waste, we see as a starting point.

We develop customised solutions for complex sustainable issues – from bioenergy to emission control, from circular processes to permit procedures. Our approach is integral: we combine process technology, environmental technology and business insight with technical depth and a keen eye for feasibility. Not only on paper, but also in practice.

We work at the intersection of technology, policy and business. By using our own laboratory and pilot facilities, we can test, validate and scale up processes for our customers. From proof-of-concept to realisation. From design to due diligence for financing. In doing so, we build bridges between sectors: from industrial leaders to start-ups, from governments to knowledge institutions. Because only together can we accelerate sustainable innovation.

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Invest International is a financing institution established in 2021 as a joint venture between the Dutch Ministry of Finance (51%) and Dutch development bank FMO (49%).
We offer tailor-made financing and project development expertise to bring projects in foreign markets to fruition and create impact on the SDGs, while serving Dutch interests.
We have a catalytic financing capacity of 2 billion euros, composed of investment capital for public and private projects, as well as grants enabling public infrastructure projects.

We offer a range of instruments suitable for financing small scale initiatives, medium sized industrial projects as well as large-scale infrastructure projects throughout the bio-Economy value chain.

While deploying our funds, we make efforts to engage the expertise of Dutch businesses, demonstrate strong environmental & social commitment and strive for local impact and inclusive growth.

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KARA, founded in 1910, is a manufacturer of custom-made and turnkey biomass and wood combustion systems (1–10 MW) for heat generation. KARA specialises in challenging fuels. In addition to wood (with a moisture content of 4% to 55%) and dust, many other types of biomasses such as flax, straw, and shells can be converted into heat.
The tailor-made systems are designed for long service life, with 8,000 operating hours per year being the standard.

The product range includes complete and fully automatic biomass combustion systems for the generation of hot water, steam, thermal oil, and electricity:

- Storage & transport
- Combustion chamber
- Boiler
- Flue gas cleaning
- Filtration systems
- Efficiency measures
- Buffer systems
- Control systems

A notable feature is that KARA can include all water-side connections as part of the delivery. Due to the strict emission regulations in the Netherlands, particularly regarding nitrogen, KARA has significantly advanced its filter technologies.

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At Komercon, we connect markets, materials, and opportunities in the international bio-based and circular economy. We don't just trade, we build reliable, scalable value chains that turn biomass and waste into value and help industries transition to a more sustainable future.
Through trading, sourcing, and strategic investment, we supply biomass and waste-derived commodities to energy, cement, and processing industries, backed by pre-processing infrastructure and supply chain optimisation.
With over 25 years of experience and a strong European network, we ensure quality, compliance, and consistent supply.
Our mission is to bridge market demand and material flows by developing sustainable solutions that enable decarbonisation, resource efficiency, and circular use of raw materials. We work with high-potential streams like biomass, RDF, SRF, treated soils and deliver them ready for industrial use.
At Komercon Assets & Services, we co-develop, invest in, and operate installations that transform underutilised waste into valuable bio-based products. From pilot projects to full-scale operations, we partner with innovators, industries, and investors to build the supply chains of the future.
We do this not just because we can, but because we believe it's necessary, for the planet, for the economy, and for generations to come.

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KROHNE

measure the facts

KROHNE ranks among the world's leading companies involved in the development and production of innovative and reliable process measuring technology for all sectors around the globe.

Founded in 1921 in Duisburg, Germany. Steadily grown to more than 3.500 employees and a turnover of over 500 million euros, the company has 17 production facilities and owns 44 companies and joint ventures.

KROHNE develops, manufactures, supplies and services products and systems which measure, transmit and control process information. Enabling our customers to operate and manage processes in a safe, reliable, economical, profitable and environmentally responsible way.

Our customers are involved in diverse branches of industry that include chemicals, water, wastewater, food & beverages, pharmaceuticals, oil and gas, powerplants, mining and shipping.

For KROHNE, service starts at our first contact with the customer and lasts throughout the life of our systems installed. Quality and reliability are key to maintaining the highest service standards. All KROHNE feeder factories are ISO 9001 certified.

When it comes to process measurement, our level of expertise is unique, not just in standard applications but also for those challenges that demand customised solutions.

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LABEE GROUP

Labee Group is a Dutch family-owned company dedicated to sustainability and innovation within the circular economy.
Since 1991, we have been committed to giving residual wood and organic materials a second life by transforming them into high-quality, bio-based solutions.
From certified wood pellets, firelogs, woodchips, and animal bedding to eco-friendly cat litter and soil improvement products for agriculture, we create practical, clean alternatives that reduce waste and emissions.
We also offer tank storage for natural liquids, supporting sectors such as energy, agriculture, retail, and industry.

With more than 1,100 collection containers spread across the Benelux, and our own logistics fleet, we manage the full chain—from raw material collection to global distribution—by road, rail, and sea.
Our subsidiaries work closely together to ensure flexible, just-in-time deliveries that meet the highest standards of quality, safety, and sustainability.
Certified under ENplus, FSC, Better Biomass, REDIII, ISCC, and more, we continuously invest in R&D to drive progress in the bio-economy and contribute to a cleaner, more resilient future for all.

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Lek/Habo – Integrated Energy Solutions for a Sustainable Bioeconomy
With decades of experience in the biogas market, Lek/Habo delivers comprehensive energy solutions tailored to the evolving needs of the bioeconomy. Our portfolio includes high-efficiency CHP units, advanced biogas cleaning and drying systems, intelligent control panels, transformer stations, and low-voltage distribution systems. Today, Lek/Habo also offers cutting-edge Battery Energy Storage Systems (BESS) and industrial heat pumps, which recover energy from residual flows such as wastewater treatment or industrial processes—supporting circular energy concepts. Our CHP systems, available in a wide range of brands and capacities (50 kWe to 3600 kWe), not only generate green electricity but also utilise engine heat for customised applications, such as drying digestate solids. We support both on-grid and off-grid configurations, with integrated energy management solutions that can be combined with solar or wind systems.
Lek/Habo offers full EPC contracting, managing projects from concept to commissioning. Founded in 1948, we now operate from 7 locations across the Netherlands, Belgium, Germany, and Poland with over 300 professionals.
Let's build the future of sustainable energy together—contact us to discuss how we can support your project.

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As an independent partner, Looop connects organic co-products and residual streams with high-quality renewable applications. We operate as a circular supply chain coordinator and sourcing partner throughout Northwest and Central Europe. With a diverse portfolio of premium organic co-products and a strong network in the agri-food sector, we balance supply and demand.

Through our extensive network, we ensure an optimal match between residual streams and their destination with a keen focus on availability, quality, and continuity. Our strategically located storage and transshipment facilities, combined with our in-house logistics services, form a solid foundation for a reliable and future-proof supply chain. We combine logistical strength with in-depth product knowledge and a data-driven approach.

We proactively contribute to application development and ensure compliance with all quality and regulatory requirements. At the same time, we continuously optimise the supply chain and reduce the structural CO_2 emission.
For the biobased energy sector, this means reliable access to sustainable feedstocks supported by a supply chain that is scalable, circular, and structured. Every day, we move closer to our mission: a 100% circular world where waste no longer exists. Together we are Moving Circularity Forward.

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MAVITEC

Mavitec Group is specialised in rendering, gasification and green energy solutions. We provide complex process solutions in a simple, efficient and cost effective way, customised to our clients' needs. Mavitec is an expert in engineering, designing, manufacturing, installation and servicing from individual components up to complete turnkey projects.
Mavitec, international leader in the rendering industry, is known for its high quality systems and equipment for rendering animal by-products that create the best nutrient values in the market. The key of this technology is successfully applied into two other divisions.
Mavitec Green Energy's food waste and depackaging solutions handle, depack and resize organic by-products and provide the highest separation results in the market. The Paddle Depacker separates the organic material from the packaging and delivers a very clean organic output (>99,5% clean) that is extremely suitable for use in biogas installations.
Recently Mavitec Environmental developed an innovative gasification system that converts various kinds of manure into green energy and high value EcoChar: a new way of solving manure issues! Gasification offers a multitude of advantages such as volume reduction up to 85%, production of renewable energy and EcoChar – a powerful soil improver – and CO_2 reduction. The produced energy can be used as steam, hot water, electricity and hot air.

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MNEXT
MATERIALS
& ENERGY
X TRANSITION

The materials and energy transition is a major challenge, but we are positive about the future. We see and seize opportunities to accelerate. Together. MNEXT, together with SMEs, serves as the bridge between innovation and society. By conducting practice-oriented research with students, teachers, researchers, and stakeholders. By working together on educational innovation. This is how we make our movement in the materials and energy transition. For a sustainable future.
MNEXT is part of Avans UAS and HZ UAS, collectively representing around 4,000 university professionals and 40,000 students. With our state-of-the-art facilities and over 100 directly involved colleagues, our research results deliver an immediate impact for businesses. Additionally, through participation in various networks, we contribute to the regional development agenda, and by aligning with the curricula of both universities, our expertise reaches bachelor's students, preparing them for the evolving demands of the job market after graduation.
Since our founding in 2013, we have built knowledge through regional, national, and international projects across various themes within the materials and energy transition. We categorise these into:
- Biochemistry,
- Biobased materials and applications,
- Biobased technology,
- Energy storage and transport,
- Smart energy systems, and
- Transitions & value creation.

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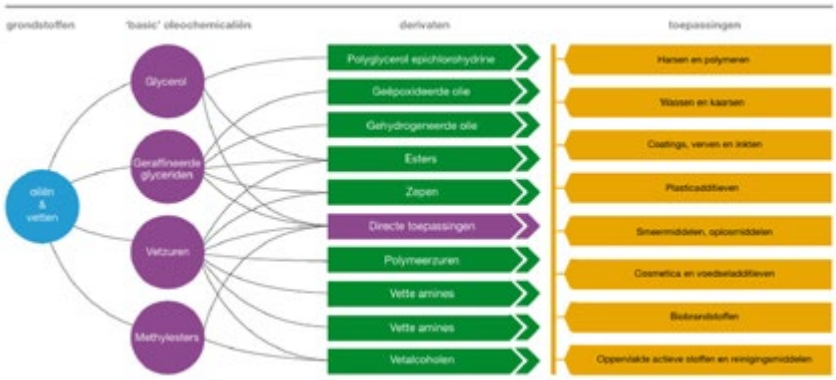

Oliën en vetten voor een duurzame wereld

MVO The Netherlands oils and fats industry association represents companies in the Netherlands that are active in the production, processing and trade of oil seeds, tropical oils and animal byproducts. The resulting vegetable and animal oils and fats are used in food, feed, chemicals and materials and energy products. Besides the main production companies and traders MVO represents companies that provide services to the production companies, like storage and transport of oils and fats and laboratories.

MVO promotes the use of oils and fats in a circular, biobased economy. MVO cooperates with universities and research institutes that research and develop new applications of oils and fats and their derivatives. Moreover, MVO supports companies to improve sustainable sourcing of feedstock and sustainable production minimising the effect on the environment. When it comes to circular, biobased products our members produce a whole range of oleochemicals that provide an alternative to the petrochemicals from fossil oil.

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nature's principles

Nature's Principles is revolutionising bioplastics with its breakthrough Mixed Culture Fermentation (MCF) technology, enabling cost-effective production of PLA-grade lactic acid from second-generation (2G) feedstocks. Founded in 2020 in Rotterdam and backed by TU Delft, we are driving sustainable chemical innovation. Our mission is to replace fossil-based chemicals with renewable alternatives, cutting CO_2 emissions and reducing reliance on food-based resources.

Our unique strength lies in converting non-food agricultural and industrial residues into high-purity lactic acid, making PLA production more economically attractive and environmentally sound. In collaboration with corporate partners, we scale our technology to deliver value across the value circle and accelerate the shift to circular, bio-based materials.

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Netherlands Enterprise Agency

The Netherlands Enterprise Agency stimulates entrepreneurs in sustainable, agricultural, innovative and international business. It aims to improve opportunities for entrepreneurs, strengthen their position and help them realise their international ambitions with funding, networking, know-how and compliance with laws and regulations. As a government agency, it operates under the auspices of the Ministry of Economic Affairs and Climate Policy, and its activities are commissioned by the various Dutch ministries and the European Union. The Netherlands Enterprise Agency runs a number of programmes and supports business initiatives with various grant schemes.

Energy and Climate is one of the agency's key topics. The Dutch government is investing billions of euros in energy efficiency, sustainable energy and CO_2 reduction. In line with this, the Netherlands Enterprise Agency supports Dutch and international entrepreneurs and researchers in developing sustainable projects related to energy, climate and the environment. Innovation and public-private partnerships are key to the Dutch approach: the government, private sector, and academia co-operate on topics such as sustainable energy technologies, green materials, built environment, sustainable mobility, chain efficiency, sustainable electricity, new gas, and greenhouses as a source of energy.

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NETTEnergy

Nettenergy is a company that specialises in biomass pyrolysis and gasification. The technology is based on our own research. We manufacture and license mobile installations with a continuous capacity of 500 kg/h (2 MW). Our pyrolysis installations produce biochar, pyrolysis oil, wood vinegar, and syngas at a ratio of 10:25:25:40 by weight. Gasification installations produce biochar and syngas at a ratio of 15:85 by weight. The installations are fully automated and operational upon delivery. They are shipped in 40-foot containers.

They can handle a wide variety of biomass, ranging from wood to agricultural waste streams.
When equipped with our SYN2H module the syngas can be converted into hydrogen.
Our installations can be found in the USA, Malaysia, India and New Zealand. Pilot installations for both technologies are located in The Netherlands and are used for testing various biomass.

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NEW COSMOS - BIE
Gas Detection Solutions

New Cosmos - BIE is a manufacturer of stationary, portable, and personal gas detection equipment, mixing high qualified gas detectors with smart forms of communications suitable for applications in a wide range of industries. You can find our detectors in production areas (clean rooms) for solar panels and electronics production, in and around fuel cells, at hydrogen filling stations, at biogas plants but also at residential areas near hydrogen or methane smart gas meters or boilers. With more than 60 years of experience in gas detection, New Cosmos – BIE serves beside Europe also customers in the Middle East and North Africa. Our mission is to create a safer global environment with a reduced number of accidents.

Our strengths: Sensor technology in house; Over 60 years of experience; Reliability; Unique Selectivity; Long lifetime; Extended range of sensors for different gases.

Solutions for the following markets: New Energy Markets; Oil & Gas Exploration; Chemical & Petrochemical; Automotive Industry; Laboratories; Micro Electronics; PV Industry; Residential areas.

Product range: Fixed gas detectors (diffusion/ suction); Portable gas detectors; Control panels; Software supervision systems; Grease/oil dust meter; Odor level indicators; Residential detectors.

Services: Maintenance; Upkeep; Repair; Training; Survey.

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nijhuis
INDUSTRIES

Nijhuis Industries delivers solid solutions for sustainable water use and resource recovery, with the highest level of intelligent innovations across a wide range of industries. We meet today's challenges as well as those of the future, as a response towards a circular economy in a 'fluid' world. To accommodate the customer requirements, Nijhuis offers customised installations, to create profit out of (waste)water, process water and waste.

Our mission is to help customers to reduce, reuse and recover water and resources to create profit. We help our customers to meet their increasingly demanding sustainability requirements, lower their environmental footprint, combine productivity and energy efficiency and reduce life cycle cost at the same time.

We provide a multidisciplinary team and a unique in-house portfolio, realising smart and game-changing solutions and systems in sustainable water use and resource recovery, combined with our intelligent services.

With headquarters in the Netherlands, Nijhuis Industries is active in all geographical regions around the world, serving over 2,600 references from its Sales & Service Centres in China, Dubai, England, Poland, Russia, Singapore, USA & Latin America.

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NO Palm Ingredients

Founded in 2021, NoPalm Ingredients® is pioneering the production of sustainable yeast oils and fats through the fermentation of upcycled agri-food side streams. Headquartered in Wageningen, the Netherlands, their innovative solutions provide a perfect drop-in alternative for palm and other tropical oils used in food, pet food and personal care products. Their proprietary fermentation process, which utilises non-GMO yeasts and a patented low-CAPEX technology, delivers price parity with palm oil while reducing carbon emissions by 90% and land use by 99%. NoPalm Ingredients® has successfully scaled its technology from lab to industrial scale and is on a mission to create a green parallel oil and fat industry.

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nordsol
Technology leaders in bio-LNG

Nordsol is committed to making bio-LNG a clean and safe advanced biofuel that is widely available at an affordable price.
Nordsol's solid bio-LNG market expertise has its roots in their progressive technology. The founders have largely reinvented the process of making LNG by carefully considering the key differences between natural gas and biogas. The result is a compact, highly integrated system of biogas treatment and liquefaction, which makes small-scale bio-LNG production economically viable. The process scheme enables the production of ultra-pure bio-LNG from biogas, in an installation with high energy efficiency, zero methane slip, integrated CO_2 liquefaction, and no heat demand.
To help develop the new bio-LNG market, Nordsol also applies its market expertise to bridge the gap between the worlds of waste management and transport fuels. Working closely with biogas production partners and committed bio-LNG clients, Nordsol develops new bio-LNG projects that are grounded by a solid business framework. In these projects, Nordsol can be technology supplier but also a business partner in organising the full value chain from biogas to bio-LNG offtake. This is a unique concept in the market that offers significant benefits to biogas producers.
The Nordsol bio-LNG-plant in Amsterdam, the first bio-LNG plant in the Netherlands, produces 3.4 kilotonnes of bio-LNG and 6.3 kilotonnes of bio-CO_2 per year. The plant has been operational since October 2021.

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oerlemans plastics horticulture

Oerlemans Plastics is a leading producer of high-quality plastic solutions. We continuously develop new film and packaging concepts for horticulture, food, non-food, and wholesale sectors.

Our products are used in over 30 countries, always with a focus on the customer, consistent quality, and a profitable result. Thanks to in-house production and logistics, we can ensure fast, reliable, and flexible service.

For decades, Oerlemans Plastics has produced a wide range of film and packaging for the international agribusiness, also known as the agri- and horticultural sector. This agri- and horticultural sector comprises products for horticulture, livestock farming, arable farming, and bedding. Each product consisting of film or packaging material can add extra value to your business operations. Looking for a specific solution that enables you to achieve a good return with good processability? We are the go-to specialist in the field of producing film for horticultural and agricultural purposes.

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PAQUES biomaterials

Paques Biomaterials is revolutionising plastics with Natural PHA's. The demand for sustainable, high-performance materials has never been greater. Enter natural PHAs (polyhydroxyalkanoates) — a groundbreaking class of biopolymers derived from renewable resources and produced by microbial fermentation. These versatile, biobased and biodegradable bioplastics offer a powerful alternative to conventional petrochemical-based materials. Paques Biomaterials is a scaleup producing natural PHAs from organic side streams. As a world first, this company developed two technologies (fermentation and extraction), using non-GMO fermentation to create a high-quality biopolymer from secondary/tertiary feedstock with tuneable properties and natural biodegradability in all environments without leaving persistent microplastics behind.

Natural PHAs can be considered as alternative for a wide range of fossil-based plastics, including polypropylene (PP), polyethylene (PE), polystyrene (PS), and polyesters (PET) — in relevant applications like packaging, agriculture, consumer products, and more. Unlike their petrochemical counterparts, natural PHAs are fully biodegradable in both industrial and home composting conditions, in soil, in aquatic conditions, and in anaerobic digestion plants without creating persistent microplastics. Join the movement toward a greener, more resilient plastics economy. With natural PHAs, the future of sustainable materials is not just possible — it's already here.

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Partners for Innovation

Partners for Innovation (PfI) is the leading consultancy for sustainable innovation. Together with our clients, we realise profitable solutions, with a focus on a biobased and circular economy powered by sustainable energy. PfI was founded in 2006 and has offices both in The Netherlands and Niger, with 24 and 9 employees respectively. Our Renewable Energy team works for industry, government and non-governmental organisations like GIZ, RVO, SNV, UNIDO, and WorldBank. Projects range from feasibility studies, market research, project development and funding for renewable energy and biomass value chains in Sub-Saharan Africa and The Netherlands.
Partners for Innovation (PfI) is one of the major shareholders of Coega Biomass Centre (CBC), a wood a pellet factory in Port Elizabeth, South Africa. CBC is currently mothballed but will commence production Q4 of 2022. The plant will use wood waste and residues from Alien Invasive Plant clearing (exotic trees that are mandatory to clear as they are the biggest cause of draught in South Africa) and sawmill wastes.
PfI has been instrumental in the development of the Bio2Watt 4.2 MWth biogas plant in Bronkhorstspruit, South Africa. The plant became operational in 2016 and is currently enlarged to 8 MWth.
Partners for Innovation is the cluster coordinator for the 'PIB Solid Biomass Opportunities in South Africa'. This covenant aims at developing bio energy business plans in South Africa using solid biomass residues.

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PeelPioneers

With a strong focus on sustainability and food waste reduction, PeelPioneers upcycles orange peels into high-value, clean-label ingredients for food, personal care, and home care applications. Based in the Netherlands, PeelPioneers operates the largest orange peel processing facility in Europe and is the only company that fully processes fresh peels into fiber, essential oils, and extracts, all within 72 hours.
Over the past seven years, the company has rescued over 60,000 tonnes of orange peels from incineration. In the past three years alone, this has resulted in a CO_2 reduction of 26,000 tonnes, equivalent to the yearly absorption capacity of 10,300 hectares of mature forest.

PeelPioneers collaborates with major retail and foodservice partners to collect peels and with industry-leading customers like Mayoneur, Steensma, Seepje, and Two Chefs Brewing to create new, sustainable products. The company is preparing to scale internationally, with a second factory planned in Spain, to bring its impact to Europe's largest citrus region.

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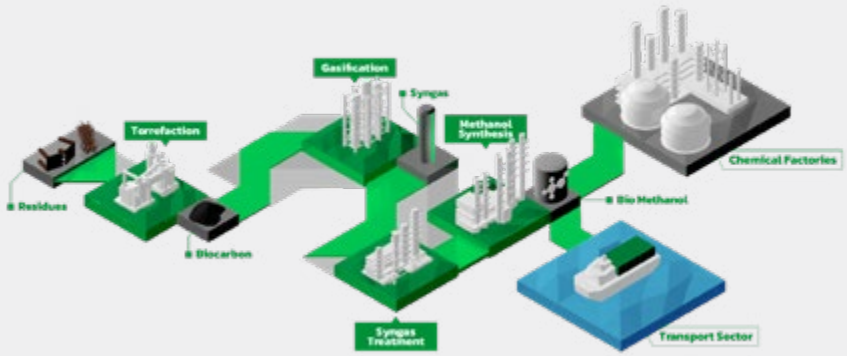

Perpetual Next converts low-value organic waste streams into high-quality, raw materials and fuels, known as biocommodities.
Our mission is to reduce reliance on fossil resources and contribute to a circular, fossil-free economy.
We build, own, and operate production facilities that process organic waste into renewable forms of fuel.
By employing carbonisation (torrefaction) as a pre-treatment step to convert biomass into biocarbon, an optimised feedstock for conventional gasification technologies, we offer industries alternatives to fossil-based resources.

What makes it unique is that this process enables a broad variety of biomass types to meet the input requirements of gasifiers.
Over years of research and operational experience, we've identified significant advantages of using biocarbon over raw biomass in gasification. By tailoring the properties of biocarbon to closely replicate those of fossil coal, we have unlocked compatibility with commercially available and widely proven gasification systems, such as entrained flow reactors.
We are currently developing biomethanol facilities in Europe and the USA.

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Platform Bio-Economie (PBE) is the independent Dutch sector platform representing companies and stakeholders active in the bio-based economy. We bring together organisations involved in the production, trade, and application of bio-based commodities across key sectors such as chemicals, materials, energy and transport.
PBE is committed to accelerating the transition towards a CO_2-neutral and circular economy, where sustainability, cascading use, and responsible resource management are central. We firmly believe that economic growth and sustainability can go hand in hand, especially when biomass is used in high-value applications that benefit both climate and competitiveness.

As a connector in the bioeconomy, we unite market players, governments, and knowledge institutions to create the right conditions for long-term development. We advocate for effective policy, stimulate innovation and collaboration, and support the development of regulation and incentives that enable a robust, future-proof bio-based market.

Internationally, PBE actively positions itself as a central hub and knowledge platform for the Dutch bioeconomy. We engage in European projects, partner with international networks, and promote the expertise of Dutch companies in global value chains. Through participation in EU consortia, policy dialogues, and trade missions, we ensure that the voice of our members is heard and that the Netherlands remains a front-runner in the global transition to bio-based solutions.

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Port of Amsterdam

The Port of Amsterdam is currently one of the leading energy hubs in Europe, with a range of large-scale flexible tank storage terminals, extensive blending infrastructure for oil products and a direct kerosine pipeline to Schiphol Airport. It is also home to one of Europe's largest biobased clusters, with a current production capacity of approximately 500 kilotonnes. The Port of Amsterdam aims to become the largest hub for the storage, blending and transit of renewable and synthetic fuels in Europe. In addition, it enhances the investment climate for existing and new companies to establish production facilities for these types of fuels. A robust project pipeline valued at €3 billion includes initiatives in renewable natural gas, bioLNG, biomethanol, and RFNBO fuels. These projects leverage the port's infrastructure for feedstock supply and product blending, positioning Amsterdam as a frontrunner in sustainable fuel innovation. The port's biobased activity is part of a wider programme aimed at supporting the transition towards sustainable energy production. For example, the port combines infrastructure, carbon capture initiatives, R&D programs, and CCU technologies across lab, demo, and commercial scales. In addition to supporting start-ups, the port facilitates the handling of large-scale CO_2 volumes via dedicated infrastructure and terminals, enabling both permanent storage and commercial reuse. The Port of Amsterdam is also well positioned for local green hydrogen production as well as large-scale hydrogen import, actively integrating with regional and national backbone infrastructure for hydrogen distribution both in the Netherlands and to neighbouring countries.

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Port of Rotterdam

The Port of Rotterdam is Europe's largest energy port and plays a central role in the development and scaling up of biofuel production and biobased logistics. Rotterdam's industrial complex supports the production of renewable diesel, biodiesel, bioethanol and sustainable aviation fuel, serving both the European market and global supply chains.

Specialised facilities in the port handle a broad range of feedstocks, including waste oils and advanced biomass, enabling efficient import, storage, and processing. In 2024, Rotterdam's total biofuel bunkering volume reached 750,000 tonnes, maintaining its status as the world's leading hub for biofuel-blended marine fuels. The port's deep-water access, modern tank storage, and robust pipeline and rail connections give biofuel producers and traders a reliable gateway to continental Europe and the United Kingdom.
As a global biomass logistics centre, Rotterdam receives, stores, and transships significant volumes of raw biomass and processed products. The port's infrastructure is designed for large-scale handling of bulk cargoes, from wood pellets to agricultural residues, supporting both energy production and industrial applications. Ongoing collaboration with logistics partners, industry, and authorities ensures that safety, efficiency, and sustainability are key priorities throughout the supply chain.
With ongoing investments and a strong partner network, the Port of Rotterdam continues to support the scaling up of biofuels and biobased products, advancing the transition to a more sustainable European energy and logistics system.

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QM Environmental International specialises in environmental (bio)technology and offers integrated solutions for environmental problems in soil, water and air. Since its foundation in 2000, QM has provided solutions for hundreds of environmental issues in the field of domestic & industrial wastewater treatment, biological soil & groundwater remediation, drain, trap, sewer and pumping station maintenance, algae control in ponds & lakes, biogas & odor control.
QM offers solutions for environmental issues that will help improve the quality of life in densely populated areas.
Technically there are few limits to the usefulness of the QM Environmental International approach where environmental pollution problems are concerned. So far the QM Environmental International approach has proved itself in:

- Municipal & Industrial Wastewater treatment
- Waste Processing / Composting
- Drain & Grease Trap Cleaning in Commercial Kitchens
- FOG & H_2S Control in Industrial & Municipal Sewers
- Ground & Groundwater Decontamination
- Biogas production
- Agriculture & Aquaculture

When QM Environmental International is presented with a problem it tries to find the friendliest environmental solution. This means that during the design of remedial programs the positive yield for the environment is always an important factor. The final product or application is a combination of cost efficiency and environmental yield.
QM Environmental International: Products you can Trust, Experience you can Rely on!

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RELEMENT
Adding the R-element.

Relement is a Dutch frontrunner in the emerging industry of renewable chemistry. We create unique and valuable chemical performance ingredients (aromatics) by converting non-food biobased raw materials. This results in better aromatics, better end products and above all: a better world.
Virtually everything we use, wear, touch, drive, is made by the chemical industry. Aromatics provide crucial product performance such as gloss, scratch resistance and stability. Today's aromatics are made from fossil feedstocks.
Biobased performance aromatics are the missing element for many difficult-to-recycle products such as coatings, adhesives, materials and more.
Our products provide an unmatched combination of improved performance and sustainability.
All elements matter.

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Rodenburg

We are dedicated to replacing fossil-based materials with sustainable, plant-based solutions — from biodegradable biopolymers for plastic substitutes to non-toxic, bio-based green chemicals for everyday products.
As a family business with an 80-year legacy, Rodenburg specialises in valorising organic potato side streams and native starches, leveraging its strong agricultural roots. For 25 years, we've focused on biobased and biodegradable compounds and bio-industrial ingredients. Our production facility with an annual name plate production capacity exceeding 100.000MT located in Oosterhout, The Netherlands.

Rodenburg Biopolymers
Our biopolymer products serve eco-restoration, horticulture and flexible packaging, offering tailored, sustainable non-plastics substitutes. Through collaboration, we co-create solutions that meet demands over the entire supply chain.

Rodenburg Tony Starch
Recently, we have added patented innovations to our product portfolio in our youngest division: Rodenburg Tony Starch. With Tony Starch we are pioneering in the biobased green-chemistry. From anti-microbial applications and use in coatings, to utilisation as a drug delivery agent, tanning agent or super absorber. With over 400 documented applications as an alternative to heavy metal- and fossil-based chemistry and a sustainable production process, our product has the potential to shape the plant-based world of tomorrow.

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Rolls-Royce
Rolls-Royce Power Systems AG

Rolls-Royce provides world-class power solutions and complete life-cycle support under the product and solution brand MTU. Through digitalisation and electrification, we develop drive and power generation solutions that are even cleaner and smarter and thus provide answers to the challenges posed by the rapidly growing societal demands for energy and mobility. We deliver and service comprehensive, powerful and reliable systems, based on both gas and diesel engines, as well as electrified hybrid systems. These clean and technologically-advanced solutions serve our customers in the marine and infrastructure sectors worldwide.

The MTU EnergyPack is the ideal energy storage solution for whenever and wherever you need power the most. Similar to a big battery bank, it's packed with all the latest technology built to withstand harsh environments and housed in a 40-foot steel container. MTU EnergyPack stores electricity from any source – grid power or local output from solar panels, wind turbines or generator sets – ready to deliver power at the flick of a switch. Whether you need a fully autonomous off-grid facility or simply want to manage your power supplies more efficiently – such as engaging in peak shaving, load-shifting or grid stabilisation – the MTU EnergyPack is a scalable, plug-and-play solution that provides reliable power, anytime and anywhere.

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RWE provides energy security to the Netherlands, producing electricity from wind, solar and hydro when available, and generating a secure supply of electricity in power plants when needed.
Flexible generation in efficient, well-managed power plants is vital for Dutch industry, mobility, and society at large.
And sustainable biomass, a carbon-neutral and renewable source of fuel, is a crucial part of the energy mix. RWE Generation, the operating company that operates RWE's portfolio of gas, coal and biomass fired power plants, uses sustainable biomass at two Dutch plants. At the 1.560MW Eemshavencentrale biomass is co-fired with hard coal. The 500MW Amercentrale fully converted to biomass per January 2025.
To produce electricity from sustainable biomass, RWE uses pellets made of the woody rest materials of sustainable forestry. The company does not produce pellets. Instead, RWE actively manages a sustainable, well-regulated global supply chain.
Committed to operating net zero by 2040, RWE Generation will decarbonise its plants. For the biomass plants in the Netherlands, RWE plans to pair bioenergy with carbon capture, utilisation and storage. That means that carbon released during electricity production is captured. The carbon can then be used by industry or permanently stored in depleted gas fields.
Because sustainable biomass is a carbon-neutral resource, the projects will deliver renewable energy and reduce the amount of carbon in the atmosphere.

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SeaWorks – We Deliver What We Promise
At SeaWorks, we don't just advertise – we act. We take full ownership of your logistic challenges.
With over 40 years of experience in transport, SeaWorks offers shippers, traders, receivers and other stakeholders the expertise to manage their biomass logistics – from loading, sea or barge transport, discharging, handling and storage, to inland transportation. We also handle sampling, inspection arrangements and customs clearance.
Whether it's bulk or big bags, we handle all types and sizes of biomass from regions including South America, Africa, the Mediterranean, the Baltic, Europe, and Southeast Asia.

Our mission is simple: enable our clients to focus on sourcing biomass without being surprised by hidden logistic costs. Transparency and reliability are at the core of what we do.
SeaWorks actively supports the transition to sustainable energy. We believe that through strong cooperation, biomass can play a vital role in the global energy transition.
Let SeaWorks be your trusted logistics partner in biomass transport and handling.

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SkyNRG is a global leader in Sustainable Aviation Fuel (SAF). Since 2009, the company has been scaling up SAF demand and production capacity for the industry to meet its 2050 net zero commitment. SkyNRG was the first in the world to supply SAF on a commercial flight flown by co-founder and shareholder KLM in 2011. To date, SkyNRG has supplied SAF to over 40 airlines across the world and is now developing dedicated production facilities to support the shift from fossil jet fuel to sustainable aviation fuel.

As a certified B Corp™ SkyNRG prioritises producing the most responsible and sustainable SAF worldwide. Recognised as a sustainability leader, it maintains an independent Sustainability Board, which advises the company on feedstocks and provides strategic guidance on wide-ranging sustainability issues. SkyNRG operations are certified against the RSB EU RED, CORSIA, and Book & Claim standards. Learn more at www.skynrg.com

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Stahl – Touching lives, for a better world
Stahl is the world leader in specialty coatings for flexible materials. With three core business lines – Performance Coatings, Leather Finishing and Packaging Coatings – we create innovative coatings that are protecting a wide range of consumer products used in countless industries, enhancing the consumer experience. From footwear and apparel to luxury goods, automotive, packaging and home furnishings.
People touch Stahl products every day. And when they touch our products, we touch their lives. This is perceivable impact we have on the consumer experience that underpins our purpose: Touching lives, for a better world. Stahl's purpose is reflected in our strong commitment to sustainability, including our Science Based Targets initiative (SBTi)-aligned emission-reduction targets.
Headquartered in Waalwijk, the Netherlands, Stahl operates a global network of 15 manufacturing sites and more than 30 strategically located application laboratories, supported by sales offices in 22 countries.

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Sunoil Biodiesel

Founded in 2006, Sunoil Group is a leading Dutch producer of high-grade, second-generation biodiesel made entirely from waste-based feedstocks such as used cooking oil and animal fats.

- Our certified biodiesel achieves up to 90% CO_2 savings compared to fossil diesel and is used across transport, maritime, inland shipping, heating, and chemical sectors throughout Europe and the UK.
- Operating state-of-the-art production facilities in Emmen and Kampen, a central logistics hub, and a commercial office in Amsterdam, Sunoil combines industrial scale with flexibility.
- We are ISCC-certified and fully compliant with multiple national biofuel schemes, including the Dutch Double Counting register, French, German, and Italian national systems for waste-based biodiesel.

In addition to biodiesel, Sunoil produces sustainable glycerine for the biogas and oleochemical sectors. Backed by in-house R&D, strong compliance, and an ambitious digitalisation agenda, Sunoil continuously innovates in feedstock valorisation, logistics automation, and circular product development - supporting a greener, smarter, and more resilient energy system in Europe.

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SYNOVA

SYNOVA provides breakthrough technologies to deliver cost-effective solutions that transform biomass and waste, as well as mixed-material and contaminated plastics, into valuable gas for the production of chemicals and fuels. SYNOVA's revolutionary process upcycles biomass and waste into clean, dense and hydrocarbon-rich gas or syngas at high efficiency. These can be used to produce chemicals, fuels and energy, enabling the energy transition and a circular economy.

SYNOVA is disrupting the world's approach to biomass and waste:

- A feedstock-flexible process that minimises the need to sort, clean, and pre-process.
- Converts almost all types of waste — including plastics, paper and cardboard — more affordably than any other system.
- Valuable output options: ethylene, propylene, butadiene, BTX, styrene, syngas, methanol.
- Scalable solution – via its MILENA cracker and OLGA tar removal technologies developed with TNO.
- Significant CO_2 reduction compared to the fossil alternatives.
- Strong propositions in cooperation with world-class partners.
- If needed, each of our technologies can be supplied individually to solve issues of an existing design.

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TechnipFMC is a leader in the refining industry and is committed to meet the world's energy challenges by leveraging its refining experience to provide alternative 'green' energy and bio-based products. Our 50+ year experience with hydrogen plants includes not only grey hydrogen, but also blue hydrogen, featuring CO_2 capture. Driven by our historical track record in grey and blue hydrogen projects, we see our involvement into green hydrogen as a logical next step in our contribution to the Energy Transition.Our bio-based offerings include Fast Pyrolysis Bio-Oil (FPBO) technology which converts biomass into pyrolysis oil. Pyrolysis oil is a renewable, second-generation bio-liquid that can be used as a sustainable alternative to fossil fuels for the production of renewable energy and chemicals. FPBO technology transforms non-food lignocellulosic biomass into liquid. All kinds of biomass residue, such as wood residues, straw, sugar cane bagasse, and sun flower husks – can be used. Pyrolysis oil is easy to store, transport, and conveniently used in versatile applications including heat, power, transportation fuels and in bio refineries for a bio-based economy. TechnipFMC delivers complete turnkey FPBO plants, based exclusively on BTG Bioliquids (BTL) FPBO licensed technology. BTL's experience in the design and commercial operation of one of the world's first FPBO production facilities (Empyro located in the Netherlands) combined with TechnipFMC's global strength in technology, engineering, procurement and construction, fosters our joint commitment to provide our customers with proven technology, EPC expertise and commercial pyrolysis oil production facilities.

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Your reliable R&D partner for the transition towards a circular bio-based economy. The Biomass to Fuels and Chemicals program of TNO Energy Transition is developing knowledge and technology for efficient and cost-effective thermochemical processing of biomass, biogenic residues and waste into biofuels, chemicals, materials and energy in the framework of a circular bio-based economy. Our work covers the entire process chain, from feedstock to product synthesis.

TNO provides R&D support and bio-based technology solutions in the areas:
- Biomass, biogenic residues and waste characterisation and application
- Fractionation, pre-treatment and upgrading
- Thermochemical conversion: e.g., torrefaction, gasification, combustion, pyrolysis
- Combined thermochemical-biochemical conversion concepts
- Syngas treatment and catalytic conversion to biofuels and biochemicals
- Smart co-production of energy, chemicals and materials involving cascading and biorefinery concepts
- Resource-efficient residues utilisation

Would you like to know more? Visit www.tno.nl/en/focus-areas/energy-transition/expertise/biobased-and-circular-technologies/biomass-to-fuels-and-chemicals/

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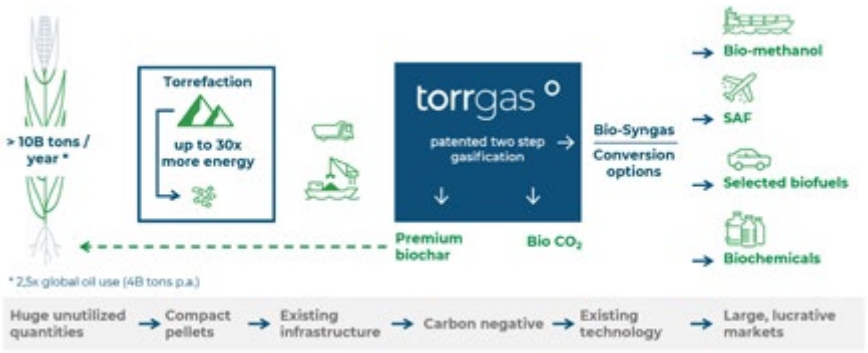

torrgas
caring for the Earth

Torrgas is a clean-technology company based in the Netherlands, specialising in the conversion of non-food biomass and biogenic waste into clean, carbon-negative syngas. This is achieved through a proprietary process that combines torrefaction and a two-stage oxygen/steam gasification system. Our technology transforms diverse feedstocks such as forestry residues, roadside grass, and demolition wood into a flexible and high-quality syngas that can be used to produce a range of sustainable end-products including green hydrogen, synthetic natural gas (bioSNG), methanol, ammonia, and sustainable aviation fuel (SAF). A key feature of our approach is the ability to produce hydrogen in a carbon-negative way by capturing and utilising the CO_2 and biochar, which contributes to significant greenhouse gas reduction. Torrgas provides complete, scalable solutions that support industrial decarbonisation while creating economic value from low-grade biowaste. Our projects include the development of commercial-scale biomass-to-hydrogen plant “HyCarb” in North Netherlands aiming to produce renewable hydrogen. We have operated a 1 MWth test plant that has successfully demonstrated high-efficiency gasification with extremely low tar levels. Torrgas continues to partner with industrial stakeholders to accelerate the deployment of renewable hydrogen and synthetic gas infrastructure across Europe.

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TransitionHERO

TransitionHERO B.V. (2019, Rotterdam) is a GreenTech engineering and consultancy firm that turns bold sustainability ambitions into industrial reality. Serving North-West Europe while supporting clients worldwide, our 20-strong team blends deep process expertise with sharp business sense to de-risk and scale clean technology. We guide ideas to impact through 1) specialised GreenTech engineering, 2) business-case validation that stress-tests ROI and climate impact, 3) dealing confident with uncertainties for technical, financial and permitting, and 4) energising, transparent partnerships that keep innovation fun.

Our portfolio spans energy-transition and circular-industry domains, from long-duration energy storage to converting waste into valuable food or chemical streams, but hydrogen is our fastest-growing focus.
These and other assignments underpin our ambition to avoid five million tonnes of CO_2 per year by 2030, demonstrating that meticulous engineering, sound economics and human ingenuity can accelerate a net-positive industrial future.

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VDKOOY

Van der Kooy specialises in the sustainable conversion of used oils and fats into renewable fuels and bio-based raw materials. We collect and process used cooking oils, animal fats, and industrial waste oils, transforming them into high-quality feedstocks for biodiesel, energy generation, and the chemical sector. We also produce sustainable marine fuels and Bio Heating Oil (BHO), offering low-emission alternatives for shipping and district heating.

Our sustainable marine fuels support the decarbonisation of one of the most challenging sectors, helping the maritime industry meet increasingly strict environmental targets. Produced from waste-based feedstocks, they are compatible with existing engines and infrastructures.

Bio Heating Oil, our renewable liquid biomass, is high in energy content, low in ash, and derived from non-food residues. It is ideal for use during peak heat demand periods in district heating networks.

Production takes place at our dedicated facility, where a fully equipped in-house laboratory monitors every stage of the process. To ensure quality, sustainability, and full traceability, our operations are independently certified under internationally recognised schemes such as ISCC and REDcert.

By turning waste into clean, high-performance fuels, we actively contribute to the energy transition and a circular, climate-resilient economy.

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vertoro

Vertoro is a Dutch sustainable oil company that converts forestry, agricultural, and biorefinery residues into crude oil, with patented downstream technology to co-feed this oil into existing fossil oil refineries and to use the oils directly as sustainable marine fuels. At TRL8 today and already rolling out our technology globally, starting with Brazil.

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VIVOCHEM

ViVoChem is a wholesaler and distributor of chemicals, or chemical (basic) raw materials, which are used in many industries and sectors. Every day ViVoChem supplies a wide range of, among other things, acids, alkalis, solvents, glycols, surfactants, peroxides, etc. all over the world. We also offer storage for chemicals. Chemical storage must meet strict safety requirements and is not even allowed at many locations. Therefore, have your chemicals stored safely and responsibly at ViVoChem. In addition to taking care of bulk deliveries in tankers, ViVoChem can also fill your products for you in the desired packaging. Using an ultramodern filling system, chemical bulk goods are safely and responsibly filled in 1000 liter IBCs or 200 liter drums.

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flexible storage
and cover systems

wiefferink

Wiefferink is an internationally oriented supplier of flexible cover and storage solutions. We work on products with diverse applications in agriculture, energy production and industry. Our portfolio is varied: from the storage of manure and gas in biogas installations to flexible water depots. The company is built on craftsmanship, since many of the steps in production and mounting can't be automated. Our dedicated team consists of people who know how to roll up their sleeves. As well as people who use their expertise to develop new products and applications.

In order to offer maximum quality, we like to keep the entire process in our own hands. Design and production for example, but also the assembly.

Wiefferink has spacious and modern equipped production halls in Oldenzaal and Wykroty (Poland).The assembly is done carefully by our own experienced teams. Going international is an important part of our mindset. The centre of gravity of our activities lies in Europe, but we also worked on some exciting projects in countries farther away, such as Guatemala, Thailand, Japan and South-Africa. Wiefferink has been founded in 1956 and has more than 60 years of experience in processing all kinds of foil for multiple applications.

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WAGENINGEN
UNIVERSITY & RESEARCH

To transform our current fossil-based society to a sustainable climate neutral one within planetary boundaries, we need to produce our materials from biobased resources. The preferred way to do so is to use the functionalities that nature provides and fit those to the applications we need in everyday life. At Wageningen Food & Biobased Research we develop innovative technologies and value chains to source and valorise all the components in biomass as feedstock for renewable materials.

Safe and Circular Biobased Products
Climate change, depletion of fossil feedstocks, accumulation of (micro)plastics and persistent hazardous chemicals that pose a threat to human health, biodiversity and our environment. Wageningen Food & Biobased Research helps industry with safe and circular biobased solutions.

Circular Water Technologies
To secure freshwater availability, local water circulation and the use of alternative water sources are crucial. Meeting water quality standards in this context requires new water treatment solutions that are affordable and efficient. Wageningen Food & Biobased Research is challenging this by developing technological onsite solutions for water purification, nutrient recovery and microbiological safe water, as well as by developing water treatment products that are biobased, biodegradable and safe.

Biobased Products Innovation Plant
The Biobased Products Innovation Plant is a large R&D facility used by Food & Biobased Research scientists to develop innovative processes to convert green raw materials (biomass) into biobased products.

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YILKINS

Yilkins, a leading innovator in sustainable technology, offers highly innovative, safe and efficient solutions for drying, torrefaction and carbonisation of biomass residues. Our technologies make it possible to convert more than a hundred types of residues efficiently and safely, residues such as solid biofuels, polymers, chemical derivatives and even food ingredients. Our patented technology, audited by global corporations like DNV-GL and insured by New Energy Risk, drastically reduces energy usage by 50% and emissions, marking us as pioneers in sustainability.

We prioritise customer-centric, transparent collaborations, providing integrated, tailor-made solutions that extend beyond equipment to include full-service support from testing to after-sales.

Our compact, efficient designs and proprietary technologies allow us to respond swiftly to customer needs, ensuring the lowest total costs of ownership. Yilkins' plants are modular, semi-transportable and have a compact footprint. Also, they are scalable, which makes them suitable for both small- and large-scale projects.

Yilkins is not just an equipment supplier; we're a trusted strategic partner in decarbonisation, committed to advancing a greener future through global biofuel, biochemical, and biochar projects. With global projects and collaborations with some of the biggest names in the industry, including Shell, ThyssenKrupp, Heineken and Tokuyama, we are setting new standards in the use of organic residues.

Explore the Netherlands' guides on a more sustainable future. Read more about the full scope of Dutch technology, research organisations and industry-leading companies who are building partnerships.

Excelling in Hydrogen

Dutch Offshore Wind Innovation Guide

Solar and storage synergies for a sustainable future

Moving mobility ahead

Cycling: a driver for positive change

Creating value in the biobased economy

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Would you like to present your company profile worldwide in the next edition of the NL branded guide 'Creating value in the biobased economy'? Please send your request to redesk@rvo.nl and/or g.mulder@rvo.nl.

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Netherlands Enterprise Agency

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PLATFORM BIO ECONOMIE

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