

ACHIEVING SUSTAINABILITY

HOW NET ZERO TECHNOLOGIES CAN TRANSFORM DATA CENTRES



As the digital world continues to expand at an unprecedented rate, the demand for data centres is skyrocketing. These data hubs are the backbone of our internet-driven lives, hosting everything from social media platforms to critical business applications.

The Environmental Footprint of Data Centres

Data centres, the powerhouses of our digital era, are renowned for their significant energy consumption. As they store and manage an ever-growing amount of data, their energy demands continue to escalate. Traditionally, this energy has come from non-renewable sources, contributing to carbon emissions and climate change. The urgent need for green alternatives has never been clearer.

Harnessing the Power of Algae: A Green Revolution for Data Centres

In the quest for sustainability, data centres are at the forefront of innovation, constantly seeking new ways to reduce their environmental impact. Among the most exciting and promising solutions is the integration of algae bio farms. This unique approach not only addresses energy needs but also offers a host of environmental benefits.

Algae, one of nature's most efficient photosynthetic organisms, has emerged as a game-changer in the renewable energy landscape. Algae bio farms cultivate these microorganisms on a large scale, harnessing their ability to convert sunlight into energy-rich biomass. This biomass can be processed into biofuels and other valuable products.

A Vision for the Future

The integration of algae bio farms with data centres represents a bold step towards a greener future. As the technology matures and scales, it holds the potential to revolutionize the way data centres operate. By adopting this innovative approach, data centres can significantly reduce their environmental impact, contribute to the circular economy, and set a benchmark for sustainable practices.

Algae bio farms offer a multifaceted solution to the environmental challenges faced by data centres. Through sustainable energy production, carbon capture, and innovative cooling solutions, they pave the way for a harmonious blend of technology and nature.

INNOVO Net Zero is in the final stages of formalising significant Data Centre partnerships using algae bio farms, across the USA, Australia and Europe.

Our leadership and progress in this space will be significant. If you would like to hear more about this exciting development, as a technology provider, partner or investor please visit www.innovo-net-zero.com, we look forward to talking with you.

AUSTRALIAN GOVERNMENT'S GREEN INITIATIVE TO SUPPORT GREEN ALUMINIUM

The Australian Government has recently announced AUD2 billion investment to support the transition of the aluminium industry to renewable energy. This initiative, known as the Green Aluminium Production Credit, claims to position Australia as a leader in the production of green aluminium.

Key Features of the Initiative

1. **Production Credits:** Aluminium smelters will receive production credits for each tonne of green aluminium produced using renewable energy. This incentive is designed to boost confidence and investment in local facilities.
2. **Timeline:** The initiative will be in place until 2036, providing a decade-long support framework for smelters transitioning to renewable energy.

3. Economic Impact: The investment is expected to create well-paid jobs across regions and suburbs, supporting the nation's net-zero ambitions. It will also help secure thousands of jobs in the aluminium industry.

4. Global Competitiveness: With Australia being the world's sixth-largest aluminium producer, this initiative positions the country to meet the growing global demand for low-carbon products.

Benefits and Opportunities

Environmental Impact: The transition to renewable energy will significantly reduce greenhouse gas emissions associated with aluminium production.

Economic Growth: The initiative will drive economic growth by leveraging Australia's vast bauxite reserves and skilled workforce.

Job Creation: The investment will create secure, well-paying jobs across regions with aluminium smelters, such as Tomago in New South Wales, Boyne in Queensland, Portland in Victoria, and Bell Bay in Tasmania.

Global Leadership: Australia can lead the global transition to green aluminium, given its natural advantages in mineral reserves and renewable energy resources.

Industry Response

The initiative has been welcomed by industry leaders, including Rio Tinto and the Australian Aluminium Council. They believe that the production credit will help sustain and grow aluminium smelting in Australia while advancing regional communities and the country's manufacturing capabilities.

CAR TIRES SHED A QUARTER OF ALL MICROPLASTICS IN THE ENVIRONMENT

Every year, billions of vehicles worldwide shed an estimated [6 million tons](#) of tire fragments. These tiny flakes of plastic, generated by the wear and tear of normal driving, eventually accumulate in the soil, in rivers and lakes, and even in our food.

These tire particles are a significant but often-overlooked contributor to [microplastic pollution](#). They account for [28% of microplastics](#) entering the environment globally.

Despite the scale of the issue, tire particles have flown under the radar. Often lumped in with other microplastics, they are rarely treated as a distinct pollution category, yet their unique characteristics demand a different approach.

Recently delegates met in South Korea to negotiate the first global plastics pollution treaty. While this landmark agreement is poised to address many aspects of plastic pollution, tire particles are [barely on the agenda](#). Given their significant

contribution to microplastics, recognizing tire pollution as a unique issue could help unlock targeted solutions and public awareness.

Hundreds of chemical additives

Tire particles tend to be made from a [complex mix](#) of synthetic and natural rubbers, along with hundreds of chemical additives. This means the consequences of tire pollution can be unexpected and far reaching.

For instance, [zinc oxide](#) accounts for around [0.7% of a tire's weight](#). Though it is essential for making tires more durable, zinc oxide is [highly toxic for fish and other aquatic life](#) and disrupts ecosystems even in trace amounts.

Another harmful additive is a chemical known as 6PPD, which protects tires from cracking. When exposed to air and water, it transforms into 6PPD-quinone, a compound linked to [mass fish die-offs](#) in the US.

Heavy vehicles, more pollution

We know that heavier vehicles, including [electric cars](#) (which have very heavy batteries), wear down their tires faster and generate more microplastic particles. Car industry experts [Nick Molden and Felix Leach](#) say that, as weight is so crucial to a vehicle's environmental impact, manufacturers should be targeted with weight-based taxes under a "polluter pays" principle. This could encourage lighter vehicle designs while motivating consumers to make greener choices.

Regulatory frameworks, such as the EU's upcoming [Euro 7 emissions standard](#) (which targets vehicle emissions), provide a starting point for controlling tire emissions. But additional measures are needed.

Innovations in tire design, such as eco-friendly alternatives to zinc oxide and other materials like 6PPD, could significantly reduce environmental harm. Establishing a [global panel of scientific and policy experts](#), similar to ones that already exist for [climate science](#) (known as the IPCC) or biodiversity (IPBES), could further coordinate research and regulatory efforts.

Crucially, we must classify tire particles as a distinct pollution category. Compared to conventional microplastics, tire particles behave differently in the environment, break down into unique chemical compounds, and present distinct toxicological challenges.

With more than [2 billion tires](#) produced each year to fit ever-heavier and more numerous cars, the problem is set to escalate with the environmental increasing.

Measures like weight-based taxation and eco-friendly tire innovations would not only reduce tire pollution but also pave the way for more sustainable transportation systems. The question isn't whether we can afford to act. It's whether we can afford not to.

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