DECARBONISATION THROUGH A TECHNOLOGY NEUTRAL APPROACH

Tuesday 28 January 2025

18h00 Cocktail – 18h30 Roundtable Dinner Debate
European Parliament, Members' Salon

Organised in partnership with CEMA, the European Agricultural Machinery Association

INTRODUCTION BY PARLIAMENTARY HOST

Tomáš ZDECHOVSKÝ MEP (EPP, Czechia), Budgetary Control Committee & Internal Market and Consumer Protection Committee (*Points noted from the presentation*)

Ladies and gentlemen, colleagues from the European Parliament, the European Commission, and distinguished representatives from industry, I would like to welcome you to this debate on Decarbonisation through a Technology Neutral Approach.

It is my pleasure to host you this evening here in the European Parliament.

Politicians are not the most important factor—what truly matters are the connections between us and the strength of our social network. However, one crucial thing stands out: vision. Europe needs to be great again.

We need people like you to step forward and support this idea. Without it, we risk being governed by weak leadership, leaving us vulnerable to external forces. On one side, we have the United States, on the other, China, flooding global markets with low-cost goods, creating unfair competition.

You are the ones driving progress—hardworking individuals, taxpayers, and the backbone of Europe's economy. You make Europe strong, and we need your support. Over the next five years, together with the Commission, we must reclaim our economic power and take decisive steps to ensure stability.

We must strive for greater independence from China, India, and other global economies. While I do not naturally favour market protectionism, the reality is that we must act. We need to be more strategic, more effective, and take necessary measures to protect our industries—industries that define our strength, resilience, and uniqueness.

To all of you here tonight, I encourage you to connect, exchange ideas, and strengthen your networks. Stay engaged with the European Parliament—raise your voices, share your challenges, and present your vision.

EUROPEAN COMMISSION

Christian Holzleitner, EUROPEAN COMMISSION, DG CLIMA, Head of Unit – Low Carbon Solutions

I would like to start by discussing our vision for climate policy before moving on to the remarkable projects emerging from European industry and how we can support them in these increasingly complex geopolitical times. As you know, our primary goal in European climate policy is to achieve climate neutrality by 2050. This means that, on balance, we must not add any additional CO_2 to the atmosphere, as it is the concentration of CO_2 that drives climate change and extreme weather events – phenomena we have already witnessed across Europe, particularly last summer.

To reach this goal, our first priority is reducing emissions, and we are making good progress. The expansion of wind and solar energy, for instance, is advancing well, and we remain optimistic. However, some emissions will always persist – such as those from agriculture, livestock, long-distance air and maritime transport, and certain industrial processes. This is why we must improve our ability to actively remove CO_2 from the atmosphere and store it effectively, whether in our soil, forests, or through products derived from biomass. For example, using wood from trees for construction can lock in CO_2 for decades, and innovative solutions like long-lasting bioplastics can further extend carbon storage before final disposal. Ultimately, some CO_2 will need to be stored permanently in former gas and oil fields, closing the carbon cycle.

This is a vision I am particularly excited about. By 2040 or 2050, our industrial processes should not only provide essential goods and services but also contribute to removing CO_2 from the atmosphere. Once we have tackled emissions reductions – a major challenge in itself – the next key metric will be carbon sequestration. How much CO_2 we can effectively capture and store over time?

Transitioning to a renewable energy-based, circular economy requires significant investment – about €600-700 billion per year, or roughly 3% of our GDP. However, it is crucial to see these as investments, not additional costs. What we are building is an economy and energy system for future generations—one that will provide energy at near-zero marginal cost and reduce geopolitical vulnerabilities by relying more on our own resources. The challenge lies in financing these changes while simultaneously addressing other pressing geopolitical issues.

Despite the difficulties, we see tremendous interest from European industry in investing in these projects. That is why I would like to highlight our Innovation Fund, which supports first-of-its-kind industrial-scale projects. Over the next decade, the fund will provide approximately €40 billion, with €12 billion already allocated to over 200 projects. Demand has been overwhelming – applications have been four to five times oversubscribed – demonstrating the eagerness of European industry to lead in this transition.

These projects span renewable energy, circular economy initiatives, carbon capture and storage, e-fuels, battery production, and other clean tech manufacturing. One of our largest investments supports carbon capture from hydrogen and chemical production in the Port of Antwerp, with CO_2 transported to Norway for underground storage. This project is pioneering a full carbon value chain – from capture and transportation to permanent storage via pipelines and ships. Another exciting project is a biomass-powered district heating plant in Stockholm, designed to capture and store CO_2 while providing sustainable heat.

To further support industrial-scale Decarbonisation, we are also looking to develop new innovative financing mechanisms. Sweden, for example, has implemented an auction system for carbon removals, leveraging voluntary carbon markets alongside public funding. Similarly, the European Commission has organised a call for green hydrogen, financing 1.4 gigawatts of electrolysers across Europe, with Member States like Germany co-financing projects to maximize impact. Our most recent funding call in December allocated €2 billion, with Spain, Lithuania, and Austria contributing an additional €800 million, reinforcing cross-border collaboration.

Looking ahead, we aim to introduce contracts for difference to support emerging green industries – such as green steel – to cover the financial gap that currently exists. By creating unified European lead markets, rather than fragmented national subsidy schemes, we can streamline investment, reduce administrative burden for companies and accelerate progress.

Ultimately, this transition is not just about protecting the environment. It is about securing Europe's economic future. A strong, sustainable energy and industrial system will provide long-term stability and prosperity. We are inspired by the enthusiasm and commitment of European industry and look forward to continuing this journey together.

Professor Andrea WECHSLER MEP (EPP, Germany), Industry, Research and Energy Committee

It is a great pleasure to be here this evening to discuss a topic that will define the future of European industry, innovation, and sustainability: decarbonisation through a technology-neutral approach.

We all recognize that climate change is fact. We all recognized that climate change requires Decarbonisation. We all recognize that the Decarbonisation challenge ahead is monumental. In particular, in the EU we now need to strike a proper balance between green policies and industrial policies.

The path to Decarbonisation is therefore neither easy nor linear.

But one element is crystal clear:

- Technology is not the problem for Decarbonisation but the solution.
- And thus, the task is also crystal clear: Decarbonisation requires a technology-neutral approach.

Let me give you one example:

- Remember the days when we realized that chlorofluorocarbons (CFCs) were destroying the ozone layer?
- Remember the days when everyone was talking about Australia being massively affected by ozone depletion?
- Remember the days when our parents were forcing us to become massive users of sunscreen?

I think we all do. But do you also remember, in what technologies CFCs were being used? Well, it was, inter-alia, refrigerators.

But did we ban refrigerators back then - as we are banning the combustion engine these days? No, we did not, as technology is not the issue but the substances, the fossil fuels, the gases that are used to run the technology.

Instead, and rightly so, we banned CFCs and developed better, safer alternatives.

Similarly, in today's fight against climate change, we must avoid banning entire sectors or technologies outright. Instead, we must target emissions, pollution, and inefficiencies while allowing industry to innovate the best solutions.

Technology is not the enemy but an enabler for innovation.

It is, thus, a good sign that there is a clear commitment to technology neutrality in the Competitiveness Compass.

In my political group in the European Parliament, you can clearly see the commitment to technology neutrality. The European Parliament's EPP Group Position Paper on the Automotive Industry puts it clearly: we need a technology-neutral regulatory framework that fosters innovation, maintains global competitiveness, and ensures affordability for consumers.

Yet, today, we see policies that pick winners and losers instead of setting clear carbon reduction goals and allowing the market to respond with a mix of clean solutions.

A technology-neutral approach does not mean doing nothing – on the contrary, it means allowing competition between the best available solutions – including carbon capture and storage.

And in this context, Europe needs to be moving fast as China already dominates 75% of the global clean tech market and the U.S. Inflation Reduction Act is pouring billions into industrial competitiveness.

In this environment, Europe risks becoming a policy-taker rather than a technology-maker unless we act decisively now.

To conclude, let us be bold in our Decarbonisation ambition but smart in our approach. Let us trust our engineers, scientists, and industries to deliver the solutions we need.

Stefan Top, CEMA – the European Agricultural Machinery Association, AVR MACHINERY, President

I would like to thank the European Forum of Manufacturers' team and CEMA—for organizing this event.

I am Stefan Top, and it is an honour to address you today as the President of CEMA, the European Agricultural Machinery Association. A bit about myself. I am a farmer's grandson and studied electro-mechanical engineering and industrial management. Since 1993, I have been with AVR in Roeselare, in West-Flanders, Belgium. We are a company specializing in soil preparation, potato planting, harvesting, and in-store equipment. We export European made machines to more than sixty countries. I have served on the CEMA Board since 2011 and was elected President in 2024.

CEMA is the European Agricultural Machinery Association. We represent via eleven national associations approximately 1,300 manufacturers in Europe. Both large multinational corporations, and many SMEs. Together, we produce yearly for €40-billion worth of machinery. This makes Europe the biggest producer in agricultural machinery in the world. And the biggest exporter in value globally.

We, as Europeans are world leading. And we are proud of this. About 150,000 people working in our industry are making this leading position happen. Our companies provide farmers, in Europe and beyond, access to cutting-edge technologies to improve their operations.

Our overarching theme here tonight is to emphasise the need for technology neutral legislation. Technology neutral legislation was always a golden rule in this town. To not favour any industry.

EU law was mainly about making and perfecting the single market. And ensuring thereby companies can compete under fair and equal market rules. This has been a great success. Also, for our industry.

Unfortunately, we have seen legislation whereby the golden rule of technology neutral legislation has been abandoned. A well-known example is the automotive sector. EU law effectively forces manufacturers de facto to make and sell electric cars.

We think abandoning technology neutral legislation is wrong. Yes, limiting greenhouse gas emissions is important.

The market, including companies and customers, will determine which technologies are developed and purchased to achieve this goal. Politically singling out one technology to decarbonize the economy is not the way.

I will show you why.

Agriculture accounts for around 11% of the EU27's total greenhouse gas emissions. Primarily from crops, livestock, and soils. Additionally, approximately 1% of the total EU27 emissions come directly from the fossil diesel engines powering agricultural machinery. The dinner you are enjoying tonight is based on fossil diesel. Without the combustion engine and diesel, we would all be on our knees in the fields harvesting by hand. That is the reality and it will be the reality for years to come.

The availability and access to affordable fossil diesel is key to Europe's food security. The reality is too: there are alternatives. And I emphasize the plural.

We as an industry invested heavily in finding powertrains that do not depend on fossil diesel. While at the same time they work for farmers.

And I need to underline this: there is no 'one-size-fits-all' solution.

Farming is challenging. It is largely outdoors, in cold and heat. Farming is diverse. From arable to vineyards, from livestock to olive groves: Europe has it all. Through this diversity European farmers provide the most resilient food system in the world.

All these variations in farming need powered machines of different sizes and ability. Whereby obviously farmers have different preferences too. We provide European-developed, European made machines to meet all this diversity. We can do this thanks to the competition between our companies. The fact we have competing companies, leads to competing technologies being developed and entering the market.

It is up to farmers to decide what technologies they favour.

For Decarbonising our machines, this diversity of competing companies is a great strength. Even though there is no legislation in place forcing us to decarbonize our machines, obviously our companies are investing heavily in developing technologies that replace fossil diesel for alternative energy carriers.

Without legislative pressure we are committed to decarbonize.

What did our companies find while looking to decarbonize agricultural machines? Electrification may be suitable for smaller machines. For most medium and larger machines, the combustion engine is and remains widely used. The combustion engine is relatively light, provides huge power for long hours, fuelling is fast and easy, and the reliability is high. And farmers trust combustion engines to provide the power to do the job.

So, we had to look at the fuels. Can we replace fossil fuels with low carbon of zero carbon fuels?

The answer is: yes, we can.

Our companies came up with a range of solutions. We are building, as I speak here, combustion engines that run on Hydrotreated Vegetable Oil (HVO), on Biomethane, on Biodiesel – also known

as FAME, E-fuels, and last but not least: hydrogen.mm. These engines are often ready, build-in our machines, and already sold to farmers and contractors.

All this engineering our companies did and the solutions it brought, would have not happened if legislation was in place forcing our industry into one direction or another.

Also, it makes sense to have a range of different technologies available.

Some farmers and contractors have access to enough electricity for battery powered machines, others can use bio-methane out of livestock. Biodiesel, and HVO can be produced by some arable farmers. While others could be better served with on-site hydrogen production or E-fuels.

The diversity of farming needs a diverse range of solutions. These we have now. Thanks to an open marketplace, where technology neutral legislation invites companies to innovate. Now, we are not there yet.

And we need the European Union urgently to help.

While we build machines with low- or zero carbon emissions for almost the same price as the diesel ones, the cost of the fuels remains a significant barrier. Many renewable fuels and alternative technologies are still prohibitively expensive compared to fossil diesel, making them less accessible for farmers and the industry at large.

Second, we face infrastructure gaps. From the logistics of getting new types of fuel to the farm, expensive new adapted storage facilities on the farm, to the limited availability of biorefineries, these structural barriers need urgent attention if we are to make meaningful progress.

Lastly, there is policy fragmentation. Farmers and industry stakeholders alike need a predictable and unified regulatory framework – one that aligns the ambitious goals of the European Union with practical, national-level initiatives.

To address these challenges, CEMA urges policymakers to act decisively by creating an enabling environment.

Let me outline three critical priorities:

- Fair Taxation
  Fuels should be taxed based on their climate contribution. By making sustainable options more economically attractive, we can encourage broader adoption across the sector.

- Incentives for Innovation
  Financial support is essential. Farmers need help modernizing their fleets, investing in new technologies, and adopting sustainable fuels that will drive Decarbonisation.

- Investment in logistics and infrastructure.
  Access to zero- and low carbon fuels can only be improved when the right infrastructure for distribution and storage is in place. Investment is needs.

We are confident this message finds fertile ground in Brussels and EU Member States. Since we do see a wind of change.

The responsiveness of Commission President Von der Leyen to delaying and simplifying a new European Directive on Corporate Due diligence, the Corporate Sustainability Reporting Directive and EU Taxonomy shows a willingness to listen to and engage with Europe's business community.

We welcome President Von der Leyen's leadership on cutting red tape and her support to make Europe's businesses thrive as never before!

In conclusion, a technology neutral approach in EU law making works.

We, as the agricultural machinery industry prove this. Leading the world with a diverse range of decarbonized technologies.

Where the EU could make a positive impact is setting the right direction for investments in and uptake of renewable fuels.

Together we can do it, industries and lawmakers. Let's go!

Paolo Falcioni, APPLiA-Home Appliance Europe, Director General

Think of a washing machine. The first revolution has been shifting from a back-breaking chore to pushing a button. But the revolution has not stopped there, as we may be tempted to think. Our industry constantly evolves with the needs of people and, yet, we are in the midst of another revolution.

Today, we are on the cusp of the smart home era, where appliances anticipate your needs. You can take control remotely, your fridge creates your grocery list, and your robot vacuum cleaner cleans while you are out. This progress is driven by the very innovation that we are here to discuss today.

And we have a shared responsibility to preserve and secure this ability to innovate, as a true asset to Europe's competitiveness and the well-being of all Europeans.

However, the growing trend of prescriptive regulation in Europe brings us in the opposite direction.

Legislation must focus on the "what," not the "how." Define the goals – be it energy efficiency, reduced emissions, improved safety, you name it – and let industry determine the best way to achieve them.

This is what technology neutrality stands for: ensuring that policies are designed in a way that they apply equally to all technologies, allowing innovation and competition to thrive. This principle unleashes the power of competition and innovation. It allows us to explore diverse solutions, compare their effectiveness, and ultimately deliver the best possible outcomes, for consumers, for you.

Energy efficiency in washing machines: some manufacturers achieve this through advanced water heating systems, others through innovative drum designs, and yet others through optimized washing cycles. Each approach has its merits, and competition ensures that the most effective solutions prevail.

When regulations mandate a specific technology, they stifle all other avenues of innovation. The result? Suboptimal solutions, hindering innovation and harming consumers.

Similarly, consider the evolution of cooking appliances. From gas hobs to induction cooktops to the latest connected ovens, each technology offers unique advantages. By embracing technology neutrality, we ensure that consumers have the freedom to choose the best solution for their needs, preferences and wallets.

In a world facing unprecedented challenges – climate change, resource scarcity, and evolving consumer needs – Europe's ability to innovate is crucial for not just staying competitive but leading the global tech race. To effectively tackle these pressing issues, we need an environment that allows businesses to experiment, adapt, and scale breakthrough solutions.

The current regulatory landscape, with its complex and often conflicting requirements, risks stifling this innovation. Overburdened by compliance, companies lack the agility to develop the transformative technologies necessary to address environmental crises, enhance resource efficiency, or meet evolving demands.

By streamlining regulations and creating a framework that encourages flexibility, Europe can unlock its full potential as a hub for cutting-edge innovation, positioning itself as a global leader in sustainable and forward-thinking technology.

Olivier Janin, ORGALIM-Europe's Technology Industries, Acting Director General & Deputy Director General

Thank you EFM and CEMA for taking the initiative to organise this essential discussion just a couple of weeks away from the release of the Clean Industrial Deal.

Orgalim represents Europe's technology industries. We are more than 700,000 innovative companies in the mechanical engineering, electrical and electronics, ICT and metal technology sectors. We develop and manufacture the products, systems and services that enable a climate –neutral and decarbonized future for Europe.

Decarbonisation is going to be a major source of growth for Europe's technology industries.

Orgalim members are global leaders in the carbon neutral energy, electrification and clean manufacturing technologies needed to get to net-zero. We support a high level of ambition in EU climate policy, fully in line with the goal to achieve climate neutrality in 2050.

To succeed in this double objective of decarbonisation and growth, we need a clear, balanced, and forward-thinking approach – one that embraces technology neutrality as a guiding principle.

Clarity is first a firm support to the European Green Deal and ambitious climate targets for 2040.

EU must continue to play a global leadership role on climate action and remain committed to net zero in 2050. With a solid focus on innovation, the EU can also stimulate lasting growth that supports the global competitiveness of European industry.

For balance and forward-thinking, technology neutrality should be our compass.

Technology neutrality is the cornerstone of effective Decarbonisation. But what does it mean in practice? Simply put, it means allowing all technologies, existing and emerging, to compete on an equal footing. It means focusing on the outcomes – reducing emissions – rather than prescribing specific methods.

This principle is vital because innovation is dynamic. The solutions we rely on tomorrow may not even exist today. A rigid, one-size-fits-all approach risks excluding promising technologies and stifling the creativity needed to tackle climate change. Instead, we must embrace a framework that encourages experimentation, competition, and evolution. This flexibility is what will unlock the full potential of European ingenuity.

Today we already using a range of diverse technologies for decarbonisation, for example:

- Digital Transformation
  Innovations like smart grids, the Internet of Things, and artificial intelligence are revolutionizing energy management, optimizing processes, and reducing emissions across industries.

- Energy
  Renewable energy continues to advance, with innovations in solar, wind, and bioenergy. Emerging technologies like hydrogen, carbon capture and storage, and advanced battery systems will play an important role for transforming our energy landscape.

- Circular Economy
  Technologies such as advanced manufacturing that enable recycling, remanufacturing, and efficient resource use play a crucial role in reducing emissions while promoting sustainability.

- Transport and Mobility
  The electrification of all transport modes is accelerating, but we must also explore synthetic fuels and other alternatives for sectors where electrification is more challenging.

These diverse technologies highlight the importance of an open-minded, inclusive approach.

Member States will not all deploy the same technologies for achieving their decarbonisation goals. Their geographies, climate, local expertise and skills, and above all their market will guide their choice.

We need the right policy environment to ensure we keep this pragmatism in European policies by:

- Incentivising Innovation for All Technologies
  The successor of Horizon Europe, the 10th Research & Innovation Framework Programme, must be technology neutral to avoid restraining invention and opportunities for Europe's future competitiveness. Mature technologies play an important role in innovation as the backbone of emerging technologies. Therefore, supporting R&D activities and fostering collaborative research through public-private partnerships in well-established industries is essential to accelerating technological advancements.

- Avoiding Technological Lock-In
  Policymakers should not pick winners. They must avoid mandating specific technologies to achieve decarbonisation goals. Doing so risks sidelining alternatives that may prove more effective or efficient in the long run. In this regard, the Clean Industrial Deal has to take into account all solutions to achieve climate neutrality.

- Playing Fair
  Support for scaling up emerging technologies is crucial, but mature technologies should compete in a fair market without preferential treatment.

- Focusing on Outcomes
  The focus should be on achieving emissions reduction rather than prescribing inputs (specific technologies). Public authorities, enterprises and citizens responsible for the transition should be able to select the best available technologies that align with their business models and priorities.

- Do Not Overregulate
  Sector-specific targets represent overregulation risks burdening emerging technologies and limiting industry competitiveness in global trade and markets. For instance, we strongly advise against including sector-specific targets in the upcoming Electrification Action Plan and in the future revision of the EU Climate Law.

- Keeping a Global Perspective
  Technology neutrality should be also considered in the context of global markets interdependence, allowing the import and export of technologies to support decarbonisation. Policies should avoid imposing trade barriers that could limit the availability of diverse solutions or hinder collaboration.

Conclusion
As Mario Draghi underlined in his report, decarbonisation is an opportunity for competitiveness and technological leadership in Europe. As Orgalim, we do support Mr Draghi's analysis. But for this to happen, we need to keep technology neutrality as a guiding principle.

Technology neutrality ensures an economic environment where diverse solutions can compete to deliver the best outcomes for decarbonisation. It promotes flexibility, market driven innovation and curtails prescriptive regulation, while also recognises the need for strategic support in scaling up emerging technologies for hard to abate sectors.

Benjamin Krieger, CLEPA-European Association of Automotive Suppliers, Secretary General

The topic is highly relevant—though not new.

Let me share my perspective. I represent the automotive supplier industry, which develops virtually every variant of the 30,000 parts and components needed to build a vehicle. Our industry prides itself on innovation, speed, and contributing to smarter, more sustainable, and safer mobility.

To illustrate the importance of technological openness, let me share an experience from a discussion I had in Germany with policymakers and engineers. After my presentation on innovation, someone asked: "If you are so committed to innovation, why don't you develop range extenders?"

For context, a range extender is an engine that burns fuel – not to directly power a vehicle, but to charge its battery, effectively making it a different type of plug-in hybrid. It is a promising concept,

yet my answer at the time was simple:"We don't develop it because European regulations do not allow it".

Under the current regulations, all new cars must be zero-emission at the exhaust in 2035. Even if a range extender ran on renewable fuels to charge a battery, it would not comply. Meanwhile, other markets, like China, classify plug-in hybrids as New Energy Vehicles [NEVs], allowing for continued innovation in this space. In contrast, the EU's rigid approach stifles the development of such solutions unless we adjust our regulatory framework.

This brings me to the broader point: policy should define clear objectives – such as climate neutrality – but leave room for market participants and engineers to determine the best path forward. We know the goal is climate neutral mobility, but predicting the technology mix in 2035 is nearly impossible. Innovation thrives when given flexibility, and history has shown that solutions often emerge in unexpected ways.

Now, let me address a common critique: "Technology openness is just an excuse to resist change." No, quite the opposite. Technological openness drives change by fostering innovation. It motivates us to develop new solutions and gives engineers the flexibility to push the boundaries of what's possible. As has been said before: Technology is not the enemy—it is the enabler.

This is why I was pleased to hear about the European Innovation Fund, which plays a crucial role in supporting precompetitive research. However, as we approach negotiations on the next financial framework, I urge policymakers to protect and expand this funding. Cutting research budgets would send the wrong signal, jeopardizing innovation and European competitiveness.

A key challenge remains: energy supply. Whether we talk about electric vehicles or electrified combustion engines, the real issue is not the technology—it is the energy source. EVs require green electricity, just as combustion engines running on renewable fuels would be carbon-neutral. We need a bold strategy to ensure Europe develops the supply chains for renewable and synthetic fuels. Without this, we risk limiting viable pathways to Decarbonisation.

Some argue that renewable fuels will never be viable because they are too expensive. Perhaps – but we will not know unless we try. Right now, we are not trying. The regulatory framework discourages investment in these fuels by signalling the end of combustion engines. If we truly want an innovation – driven transition, we need a more balanced approach that enables market-driven solutions.

Looking ahead, I believe we must recalibrate our regulatory environment, particularly fleet CO_2 regulations. I look forward to the upcoming strategic dialogue, where we can exchange ideas and refine our approach. While electrification is central to our strategy, we must ensure it succeeds. That means addressing charging infrastructure, renewable energy availability, and complementary technologies.

To conclude, Europe has the talent, the engineers, and the inventive spirit needed to innovate our way forward. But we must be bold enough to trust in technological progress rather than attempt to predict the future with rigid regulations. If we create the right conditions, innovation will lead the way.

Phil Cole, WINDEUROPE, Director of Industrial Affairs

Today, the EU boasts 225 GW of installed wind energy capacity. This capacity powers 19% of Europe's total electricity demand, demonstrating wind energy's reliability as a cornerstone of our energy mix. Most importantly, wind energy directly strengthens our energy security. By producing clean electricity, it eliminates the need for billions of cubic metres of gas imports annually, reducing Europe's reliance on volatile imports — a reality we have all become very much aware of recently.

But while wind energy is already playing a major role in the energy transition, we still have much further to go. To meet the EU's climate and energy targets, wind energy capacity must almost double, reaching 425 GW by 2030. This is achievable if we align our policies and investments effectively.

One critical bottleneck in our progress is the stagnation of electrification rates across sectors. For over a decade, electrification in the EU has plateaued at just 23%. Contrast this with China, which increases its electrification rate by 1% annually, and we see how much ground we must cover.

Take industrial processes as an example. Electricity currently accounts for just 4% of the energy used for process heat, compared to 35% from natural gas and 27% from coal. This dependence on fossil fuels must change. While half of industrial heat demand involves high temperatures above 500°C — challenging to electrify with today's technologies — the other half, for processes like paper, pulp, and food production, is well within reach using heat pumps and electric boilers. What's missing are the enabling conditions to make this transition viable.

Here is what we need to do.

- Address Taxation Imbalances
  Electricity in Europe carries disproportionately high taxes compared to gas. These taxes often include non-energy-related levies which unnecessarily inflate costs. We must align energy taxation with our climate goals through National Governments removing them – ultimately cleaning up electricity bills to encourage its use.

- Support Industrial Electrification Through Capital Expenditures [CAPEX] And Operational Expenditures [OPEX]
  Large-scale capital investments are necessary to electrify industries. Extending the Temporary Crisis and Transition Framework and enacting the right State Aid provisions will provide much-needed momentum.

  Operational expenses also require conditional and temporary financial support to ease the transition, alongside tools like Carbon Contracts for Difference to subsidise decarbonisation costs.

  An Electrification Bank would help to fund the transition to an electrified industry. It will also help to drive a just transition, reducing the need for industry to have to balance their own transition with the human cost of placing workers on leave or making redundancies whilst the change happens. For example, due to a lack of OPEX support, the Tata Steel plant in Wales has recently made 3,000 workers redundant due to the transition to electric arc furnaces taking 3 years to complete. We cannot allow more examples like this to happen.

- Fully Utilise Renewable Power Purchase Agreements [PPAs]
  Corporate renewable PPAs can accelerate wind and other renewables. EU policies must support, not overregulate, these market instruments. Offering PPA offtake guarantees through the EIB and Member States will enhance their uptake and impact. The PPA market in

Europe grows every year, but we need to see the right frameworks in place for it to truly drive the transition.

- Accelerate Grid Infrastructure Development
  Our electricity grids are the backbone of the energy transition. Governments must prioritise grid build-outs, fast-track upgrades for electrified industrial processes and apply strategic criteria for connection requests. The current first come, first served approach to grid connection requests no longer works and is slowing down the deployment of renewable generation technology.

- Simplify Renewables Permitting And Digitalise The Process
  Despite the entry into force of binding new EU permitting rules, many countries have not implemented them into national law yet. The permitting situation actually worsened in 2024. That is frustrating given that the few countries which applied the EU's new permitting rules, such as binding permitting deadlines and the principle of overriding public interest, have proven how effective its measures are. Last year Germany, where the new rules have been implemented, permitted 15 GW of wind farm projects. That is a new national record.

  We also need to digitalise the permitting process. We are all talking about AI, but today the permitting process for renewable projects remains mostly paper based. Delays, caused by permitting applications being lost in the post or people not moving the paperwork along the chain, regularly delay permitting applications by several months. Digitalising the process will not only speed up the process but also provide additional transparency.

Wind energy, alongside complementary technologies, can lead this transformation. However, success depends on our willingness to remove barriers, incentivise change, and provide the tools that industry needs to electrify.

This should not just be seen as an environmental imperative – it is an economic and geopolitical opportunity if we want it to be. By doubling down on wind energy and electrification, Europe will not only cut emissions but also ensure its energy independence, industrial competitiveness, and leadership in the global clean energy transition.

Beatriz Morales Serret, GE-AEROSPACE, Director for EU Government Relations

GE Aerospace is a global aerospace propulsion, services, and systems leader both in the civil as well as the military domain.

The company is part of the European aerospace success story and is embedded in its industrial and research ecosystem. In Europe, our footprint includes assembly, Maintenance Repair and Overhaul (MRO), engineering, collaborative research and development (R&D), and additive operations with close to 13,000 employees across 18 countries.

If we are to continue this European aerospace success story, a technology-neutral posture backed by adequate R&D funding that catalyzes innovation is the pathway towards more sustainable aviation that will help maintain economic competitiveness in Europe.

Continue Progress Towards Aviation's Decarbonisation

- Adopt a Diverse Approach to Decarbonising Aviation
  Decarbonising commercial flight is one of the aviation industry's greatest challenges, and it must be carried out by putting "safety first". There are limits to possible technology solutions, which is why a diverse approach is needed to decarbonize aviation.

  This means pursuing efforts in several areas: the use of technology improvements that are available now for fleet in service, an accelerated introduction of Sustainable Aviation Fuels (SAF) (still lacking scalability and affordability), improvements in air traffic management, and, finally, the development of breakthrough technologies for the future.

  Ideally, EU policies, initiatives and funding instruments would incentivize and support all of these levers simultaneously, mindful of aviation's global nature.

- Privilege a Technology-Neutral Posture
  The innovation process in aviation is iterative, driven by integration steps from equipment to aircraft levels and paced by maturity assessments. Also, development cycles are significantly long, complex and uncertain. Additionally, and while Decarbonisation may require the introduction of revolutionary technologies, these need to be certified by airworthiness authorities for a safe deployment.

  All of this means that multiple avenues need to be explored – future technologies and the associated ecosystem are still under design and we should therefore avoid preempting which ones will be successful for a long-term, safe and reliable exploitation.

- Maintain and Strengthen EU Public-Private Partnerships to Help Shape the Future of Flight
  Developing and testing next-generation engines and solutions is capital-intensive, long-cycle (more than a decade) and comes with great economic risk. European funding structures such as Public-Private Partnerships [PPPs] and clusters are a proven tool – they bring costs and risks down for new technology.

  Clean Aviation Joint Undertaking (JU) is a great example of collaboration and has been pivotal in directing critical resources towards making aviation more sustainable. The program needs to be continued and preferably amplified for more impact. Indeed, the availability of sufficient financial backing for the long term will help attract investments, accelerate the pace of R&D and expand projects to European scale.

In addition, there should be more synergies between EU funding streams (e.g., Framework Programme for Research and Innovation, European Regional Development Fund, Next Generation EU) as well as with national research programs to avoid fragmentation and overlaps which play against accelerating the R&D efforts.

Conclusion

Key recommendations:

- Adopt a diverse approach to decarbonising aviation, to support industry's ability to create sustainable technologies that will help reaching Europe's climate goals.

- Maintain a technology-neutral posture and let science guide progress, catalyzing innovation and advancing Europe's leadership in shaping the future of flight.

- Increase R&D spending, maintain the PPPs approach and coordinate funding between the European Commission and Member States for the future of flight, supporting the industry's transition.

Radan KANEV MEP (EPP, Bulgaria), Environment, Public Health and Food Safety Committee & Industry, Research & Energy Committee (*Points noted from the presentation*)

I will be brief. First, I must say – though it is unusual – I slightly disagree with my friend Tomáš Zdechovský. The idea that carbon is "captured and stored" means it is not released into the atmosphere, making it a prime example of a process that is difficult to regulate. In Brussels English, 'hard to obey' often means "'impossible to obey' – but in this case, it is merely difficult, not impossible. That is an important distinction.

During my visit to Dunkirk, I saw a city long known for hosting one of Europe's largest steel plants – certainly the biggest in France – now preparing for a major transformation. Despite the well-known struggles of the steel industry in Europe, Dunkirk is positioning itself to create 20,000 new jobs. The construction sector is working at full speed, building new housing day and night, yet they still lack manpower. Over the coming years, the region expects €35 billion in investments – mostly private, as public funding is limited given the financial constraints of both France and the EU.

At the same time, Dunkirk is expanding its energy capacity. Two new nuclear reactors are planned, adding to the six already in place. The city also hosts France's largest Liquified Natural Gas [LNG] terminal – one of the biggest in Europe – and is starting the construction of 40 offshore wind turbines. On the day I visited, the strong winds made it clear that this was a suitable location.

Why do I mention all this? Because Europe is facing serious challenges. We are still recovering from COVID's economic impact, followed by inflation in 2021, then the Russian invasion of Ukraine, which triggered another wave of inflation. Meanwhile, we continue debating whether the Fit for 55 package was introduced at the right time, and whether it truly supported our industry. Officially, we question its effectiveness. Unofficially, we know it fell short.

We are still discussing the industrial strategy that was supposed to happen in 2020, as part of the Green Deal. But instead of an industrial deal, we got more regulation, and the focus shifted. Even so, I must respectfully disagree with Tomasz: Europe doesn't need to be made great again—because it is already great.

Despite all these challenges, the truth is that Europe's economy is far from collapsing. More importantly, European businesses and industries have not just survived five years of policy experiments—they have adapted and thrived. They do not need massive intervention to become great; they simply need a little support to keep doing what they already do so well.

Gheorge PIPEREA MEP (ECR, Romania), Vice Chair ECR Group, Internal Market and Consumer Protection Committee

Decarbonisation is an important objective, but it must be achieved without sacrificing the EU stability.

The ambitious measures to reduce carbon emissions risk imposing big costs on citizens and national economies, especially in less economically developed countries is not a wise ideea for Europe at this stage.

Even Donald Tusk in his speech last week criticized the implementation of the European Green Deal, stressing that Europe must maintain its economic competitiveness and avoid creating the bankruptcy of member states' economies.

The same narrative had the Minister of Energy from Romania, blaming the Green Deal in a statement last week.

If there are already existing technologies with low carbon emissions, that is excellent.

However, you cannot fight climate change by imposing carbon footprint taxes and driving Europe's economy into bankruptcy. The transition must be based on innovation, fairness, and competitiveness, not on measures that burden citizens and industries disproportionately.

Carolina Vigo, SIEMENS, Director Green Transformation of Industries, EU Government Affairs

"Mille viae ducunt homines per saecula Romam" -> "All roads lead to Rome", the ancient Romans would say. It is not about which road we take, what matters is getting to Rome and being serious about getting to Rome. In case you are wondering, our 'Rome' is the Green Deal.

More than 90% of our business enables positive sustainability impact for our customers, driving impact across our propositions of decarbonisation and energy efficiency, resource efficiency and circularity. In the 2024 Financial Year 2024 [FY2024], our CO_2 footprint was smaller than the portfolio on customer avoided emissions – including the supply chain. (In FY24, Siemens products sold to customers are projected to avoid around 144mn metric tones of CO_2 equivalent emissions over their lifetime. In contrast, the entirety of our value chain emissions accounted for only 121mn metric tonnes of GHGe in FY2024.)

Do we have a magic wand? No, we are "simply" using our digital technologies and harnessing the power of data to make our products, processes and customers' offering more sustainable and productive.

And this is why tech neutrality is a key principle for several sectors, but I dare to say it assumes a further importance for tech companies like Siemens, who are enabling others, including energy intensive industry, to deliver on the green transition.

And if I mention "tech companies", I guess your thoughts go immediately to AI. AI is a key accelerator of decarbonisation. It kills the burden of time. With the combination of other technologies, it enhances the likes of digital twins, 3D printing, Internet of Things [IoT], Augmented Reality /Virtual Reality [AV/VR] and many more.

While its full potential is still unknown, AI can significantly aid in our efforts.
To maximize AI's benefits, we need to ensure data is fully utilized and exchanged across sectors. This means: interoperability and tech neutrality.

Let me give you two examples:

- Sustainable Products Regulation (ESPR**)** – the mother legislation of the Digital Product Passport [DPP]

The initial proposal from the Commission referred to a specific standard for the DPP that was not interoperable for the B2B sector. This would have led to lock-in effects.

- Electricity Grid
  Current investment regulations encourage investment in physical grid capacity (CapEx) but not in digital upgrades (OpEx). This bias hinders the smartening of grids, which is crucial for reducing investment needs (-18% investment reduction) and expanding grid capacity. This would reduce energy prices, and give space for AI and data centres to flourish in Europe.

Decarbonisation is a monumental task that requires urgency and precision. We cannot afford to get it wrong. We must use all available technologies to ensure Decarbonisation happens effectively.

In conclusion, tech neutrality, interoperability and implementation are essential for accelerating the green transition. Let us be serious about our goals but flexible in our methods. "Define Rome, be serious about getting there, but do not pick the road to get there."

Vincenzo Belletti, CECIMO European Association for Manufacturing Technologies, Director of EU Public Affairs

It is a pleasure to be here tonight on behalf of CECIMO, the European Association of Manufacturing Technologies. I would like to extend my gratitude to our host and to EFM for organizing this important event.

At CECIMO, we firmly believe that just as our industries evolve with innovation, our policies must remain equally dynamic and forward-thinking. Recommitting to technology neutrality in legislation is crucial – not only to meet today's pressing challenges, such as Decarbonisation, but also to ensure that Europe is positioned to seize the opportunities of tomorrow.

Manufacturing technologies are the backbone of industrial growth. They deliver solutions that enable Decarbonisation across multiple sectors – from energy and transport to construction and aerospace. For instance, additive manufacturing [AM] has helped the aerospace sector to produce fuel nozzles for the engine. These fuel nozzles are 25% lighter and five times more durable than traditional nozzles. The use of AM also reduced the number of parts from 20 to 1, reducing assembly time and cost. Similarly, other manufacturing technologies play a vital role in the development of net-zero technologies—for instance, boring mills are used to machine large components such as wind turbine housings, while laser cutting and welding machines create critical parts for electric vehicles.

It is therefore critical that, in its efforts to accelerate the transition to a decarbonized economy, the EU recognizes the energy and resource efficiency potential of advanced manufacturing technologies and processes.

One policy area that would benefit from greater technology neutrality is the EU Taxonomy. As highlighted in the final report of the Industrial Forum Task Force 5 on Advanced Manufacturing, the current Taxonomy framework fails to adequately recognize the enabling role of advanced manufacturing technologies. This oversight is actively diverting private investment away from these critical technologies.

To address this issue, it would be important to design a technology-neutral section on advanced manufacturing as enabling activity for climate change mitigation and circular economy in manufacturing.

Adopting this technology neutral approach would unlock significant potential for Decarbonisation in different sectors, empower manufacturers to contribute fully to the green transition, and attract essential investment to this strategic sector.

We also need to learn from missed opportunities. The Net Zero Industry Act, for instance, does not fully account for the value of advanced manufacturing technologies or their role in building net-zero solutions. This gap highlights the need for stronger inclusion of manufacturing technologies in future frameworks, such as the upcoming Clean Industrial Deal. This initiative represents a tremendous opportunity to correct course and position manufacturing technologies as a cornerstone of Europe's industrial strategy.

In conclusion, it is important that the future industrial policy strategies will recognise the critical role of advanced manufacturing technologies, the EU would gain a competitive advantage on the global stage, ensure that clean technology development remains within the EU, and maintain control over the production of the machinery and components essential for net-zero technologies.

Let us try to stay ahead of the competition and build a decarbonised industry with solutions we have already in Europe.

Dr. Begüm Bozkaya, CONSORTIUM FOR BATTERY INNOVATION, Senior Technical Manager

I would like to speak briefly about the importance of creating a neutral playing field for all technologies – specifically referring to batteries in Europe – and how this can act as a catalyst for growing European industry as well as achieving decarbonisation goals.

I am a battery scientist based in Germany and I work on a range of advanced battery research programmes, specifically for lead batteries. Such batteries are used in various applications such as automotive, energy storage systems as well as backup systems data centres. I should highlight that these batteries are manufactured and recycled in Europe.

I represent a value chain that supports more than 184,000 skilled jobs across nearly all Member States – with some of the most advanced manufacturing and recycling facilities anywhere in the world.

Currently at the Consortium for Battery Innovation, we are pushing the boundaries of research and innovation to produce the next generation of lead batteries.

Perhaps you are more familiar with lead batteries, as such battery can be found under the bonnet which starts your car and powers your vehicles' electronics – but they are essential in so many other applications. For instance, they are also used as the auxiliary and back-up battery in electric vehicles to provide safety features.

At Consortium for Battery Innovation, our members include manufacturers, recyclers, universities and research institutes – and they are multi technology companies and research bodies working with a range technologies. I suppose the key factor here is that the user, the client, the customer, the market decides what technology works best for them.

Therefore, it is essential for Europe investing in battery research and continue to innovate by considering all battery technologies to meet the targets for Decarbonisation and electrification. To succeed technologically and economically it is critical that we nurture a battery eco-system that embraces all battery technologies.

The demand for energy storage is enormous, we need all battery technologies capable of supporting different scenarios – from microgrids to the main grid. As more and more renewables come into play, we need batteries capable of smoothing the peaks and regulating the frequency in both supply and demand.

So, I would urge policymakers and legislators to remain technology neutral, and avoid picking winners. The most important duty is to create the best conditions for growth – be it through proportionate regulation, support for innovation, or investment. Businesses need consistency and predictability.

And finally, may I would ask decision makers to value what we have.

Europe is a centre of excellence for battery design, manufacturing and recycling for advanced lead batteries. All our industry requires a licence to continue to operate which Europe already does very well. By doing that, we will continue to support economic growth and innovation.

In the coming years, while continuing to push the boundaries in advanced battery technology for existing applications and products, we are developing new technologies. I am talking about the Battolyser System, which is a system that captures hydrogen from lead batteries and provides solution for clean cooking in remote areas that are not connected to an electricity grid. All these innovations are developed and made in Europe.

Let us keep it that way - and power ourselves towards decarbonisation and industrial success.

Dennis Kredler, DOW, Senior Director Government Affairs Europe

Dow is building the world's first net-zero petrochemical complex in Canada, as part of our plan to decarbonize our manufacturing facilities globally while growing capacity and delivering products with lower carbon footprints. We are pursuing the objective of reaching net zero by 2050 across our global manufacturing base.

Like other sectors, the chemical industry has limited technology options when it comes to Decarbonisation. Key potential future technologies are still in the development process and may not be available for another decade or more. However, other technologies are available today that can enable significant reductions in CO2 emissions sooner, including Carbon Capture and Storage [CCS]. The decision to invest in Decarbonisation of our Canadian plant was in part driven by the fact that CO_2 transport and storage infrastructure was already in place, contrary to Europe where this infrastructure is still under development following many

years of reservations about the technology. This absence of technology neutrality is now slowing down the industry's Decarbonisation efforts here.

This makes clear that regulatory frameworks play an important role in determining where we can decarbonize in the short term. The framework conditions set by regulation play a major role in determining the business case for investments in Decarbonisation projects.

A lack of technology neutrality is not only an obstacle for Decarbonisation: we also see this slowing down the transformation to a circular economy for plastics. For example, there are multiple recycling technologies that today are not recognized as valid in EU regulation and that will be needed to reach recycled content targets for packaging, especially on contact sensitive applications.

Technology neutrality is important to keep options open for industry to innovate and determine the most efficient way to achieve sustainability targets. We see technology choices made explicitly or implicitly in multiple EU policies, eg. related to hydrogen, carbon capture (where storage is supported but utilisation is not, reducing the incentive to invest R&D into utilisation).

We also see discrimination of plastics compared to other materials even where it has better life-cycle performance.

The following suggestions for policymakers aim to provide industry with a more attractive environment to accelerate its transformation in Europe:

- As a general rule, where there is disagreement about technologies, regulators should be clear on the targets and leave the rest to the market. There also needs to be clarity on how the achievement of targets will be calculated but be mindful that the calculations themselves, if too detailed, can imply technology preferences. One way of avoiding overly detailed regulation is by reducing the number of Delegated Acts that are mandated in primary legislation, often as a result of an inability to find political consensus on details.

- A focus on green technologies from power generation tends to obscure the absence of satisfactory storage technologies to ensure availability of power to those industries that require (near) constant power supply 24/7. Technology openness for low-carbon technologies, eg. including emerging technologies such as Small Modular Reactors (SMRs).

- Discussions about technology, if they do have to take place, need to recognize technology readiness: some technologies that are sometimes being discussed are far from reaching technology readiness, yet the policy discussion appears to expect them to be deployed in the near term. Basing policy on technologies where it is uncertain when they may become available or how much they will cost is highly risky for the success of any transformation strategy.

Sander SMIT MEP (EPP, Netherlands), Environment, Public Health and Food Safety Committee (*Speaker unexpectedly could not participate, presentation included*)

Previous speakers have highlighted the importance of technology neutrality from various industry and practical perspectives. I would like to reflect on the importance of technology neutrality from an institutional perspective. I will argue that technology neutrality is a legal principle that should be upheld and honoured by all EU lawmakers.

To make this case, we have to turn to the concept of subsidiarity. As abstract, unsexy and elusive it may sound, subsidiarity is a crucial principle of the functioning of the European Union. It limits

the power of Brussels to issues that cannot be effectively achieved by Member States at the national level. It prevents unnecessary centralization, protects Member State autonomy, does justice to regional differences and fosters diversity across the Union.

Now, replace 'Member States' with 'Companies', and it becomes clear that technology neutrality and subsidiarity are two sides of the same coin. Technology neutrality allows companies the freedom to choose solutions that best fit their business, avoiding centralized dictates while fostering diverse, innovative approaches across the EU. Crucially, subsidiarity is not just a principle, but a legal right—a right that Member States can claim. Should companies not be able to do the same?

I suggest: where EU regulations stifle your innovative spirit, forcing you in a predefined constraint, reply in the consultation that the suggested legislation undermines technology neutrality and violates the principle of subsidiarity!

Upholding subsidiarity and technology neutrality is not only for safeguarding the competitiveness and innovative capacity of European firms as Mario Draghi rightly points out: By applying "the subsidiarity principle more rigorously and reducing the regulatory burden, we can empower EU companies to thrive.", but technology neutrality is also crucial to prevent the politicization of EU rules and legislation. This happens when seemingly objective goals are enforced through politically biased solutions.

You are familiar with the examples - from nuclear to the ban on combustion engines. Less well-known, however, is the restriction on Recovered Nitrogen from Manure [RENURE] – a collection of techniques designed to reduce emissions in livestock farming. These techniques address many objections to intensive livestock farming, yet their development and investment have been stalled for years – and we are not alone in suspecting a political agenda behind this.

The politicization of legislation by the European Commission undermines trust—not only in the Commission itself but also in the European project as a whole. Technology neutrality, therefore, should not only be a principle of European law but a part of the mentality of European lawmakers. A mentality of neutrality towards the solution, neutrality towards the business they help thrive, a mentality of trust that, with clear rules and the right incentives, companies each time are able to surprise!

CLOSING REMARKS

Antony Fell, EUROPEAN FORUM FOR MANUFACTURING, Secretary General

My thanks to our Parliamentary host, the European Commission, MEPs and manufacturers for a lively discussion on decarbonisation through a technology neutral approach.

Thank you also to CEMA, our industry partner for this event, and especially to Jelte Wiersma.

Finally, I would like to thank EFM team, Caroline Richmond, and Janice MacCormack for all their support and now formally close this European Forum for Manufacturing event.

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