

'GREEN DEAL & ELECTRIFICATION TRANSFORMATION IMPACT

Tuesday 30 November 2021

17h00 – 18h30

Virtual Meeting

WELCOME & INTRODUCTION

The Chair welcomed the speakers and participants to the EFM virtual meeting on the Green Deal and Impact of Electrification Transformation. Presentations will be on the record, discussion and Commission response off the record.



Jens GIESEKE MEP (EPP, Germany), Vice-Chair Transport Committee, Shadow Rapporteur on Alternative Fuels Infrastructure Regulation & Environment Committee, Shadow Rapporteur on CO₂

Thank you very much, colleagues of the Parliament, Representatives of the Commission, the European Forum for Manufacturing and for giving me the floor first today.

For me, the Alternative Fuels Infrastructure Regulation (AFIR) is one of the key files for the transition towards Sustainable Transport.

- It contains provision for charging infrastructure for alternative fuels and the requirement of developing that especially along the Trans European Transport Networks (TEN-T)
- AFIR sets a number of mandatory, national targets for the deployment of alternative fuels infrastructure in the EU, for road vehicles, vessels and stationary aircraft.

So far, the infrastructure development has been quite limited, both in terms of quantity but also in terms of local distribution.

And 80% of publicly acceptable charging stations in the EU can be found in Netherlands, Germany, France, Italy and Sweden. So, the evidence is clear, this should be a success story for all of Europe.

We need to focus on the border cross connections and work with all the Member States together to have a comprehensive infrastructure. Driving with alternative fuels is only attractive if there is an extensive network. Only when it is attractive to drive with a car from one member state to the other using sustainable fuels, will driving with alternative fuels become fully accepted by our society.

Of course, to fund these changes a huge amount of money is required

So, I am glad that the funds for the main EU funding instrument for the transport sector, the Connecting Europe Facility has been increased-due to the insistence of the European Parliament.

Between 2021 and 2027 we have a budget of €33.71 billion, almost €3 billion more than in the last period.

As a second point I want to come onto the CO₂ free targets where I am also Rapporteur.

The Commission has proposed very ambitious targets. To make it clear: the proposal by the Commission would mean the end of the ICE. And I personally believe that this is the wrong approach. The proposal as it stands will be the end of the technological neutrality legislation of EU legislation.

For me, keeping technological neutrality is unavoidable for reducing emissions by 55%. We have to use every single technique available that helps to achieve this goal. And we have to be honest: the change to e-mobility means a big transition, especially for the manufacturing sector.

For an electronic engine, around 20 parts are needed. A combustion engine consists of over 200 parts. That alone shows that there will be massive disruption in the workforce in this field.

We need clever solutions for the workers that currently work on ICEs. Re-schooling and upscaling need to be properly organised.

We need a mechanism to help the industry in the transformation process.

My biggest concern is the over 17,000 SMEs in the supplier market. Most of them are highly specialised in their own niche. We need to make sure that these companies have a future on the market.

That is why I firmly believe that we should only phase out the ICE that is fuelled by fossil fuel. I believe that there is still a future for the ICE when sustainable fuels fuel it. Innovation and market-based instruments are a key element in achieving the FF 55 goals - not blanket prohibitions.

We can only achieve climate neutrality if we invest in the expansion of charging infrastructure and stick to the principle of technological neutrality.

The transition toward sustainable transport is a huge challenge for many sectors. But we also see it has a chance to become strong in the industry fields of the future. However, it is a narrow tightrope to walk.

We need to find good compromises on where the industry and society can become more sustainable whilst also ensuring that we do not stall our economy. There will be no European profits if afterwards we have to import all of our products, as production in Europe has become too expensive.

We need a transformation that works for the environment of the European population, otherwise we will lose the citizens half way.

For me it is clear: climate protection – yes - but under the right conditions.

That is why I am happy that we are here today, to learn what the transition will make mean in practice, to discuss the challenges ahead, and debate on how to mitigate the transition in the best manner.

AN INDUSTRIAL ECOSYSTEM PATHWAY

Mehdi Hocine, EUROPEAN COMMISSION, Deputy Head Mobility, DG Internal Market, Industry, Entrepreneurship & SMEs

Thank you for giving me the opportunity to address you today at the European Forum for Manufacturing.

With the adoption of the EU Green Deal, the Commission has clearly spelled out its ambitions on clean mobility. The July 2021 proposal on CO₂ for cars and vans illustrates this level of ambition. The Commission proposed that by 2035, all cars and vans will have zero CO₂ emissions tailpipe. As you know, new pollutants emissions (Euro 7/VII) and CO₂ standards for heavy-duty vehicles are also planned for 2022.



The automotive industry had already started its journey towards clean mobility before the EU Green Deal. The market share of zero and low emission vehicles until recently could give the impression clean mobility was a niche market. Something that would happen only in a quite distant future.

This is no longer the case. Recent data show that alternative powertrains (battery electric, plug-in hybrid and hybrid) represented 40% of EU-27 passenger cars registrations in Q3 2021. Diesel now represents only 17.6% of EU registrations.

This means the entire industrial supply chain, but also the retail networks have to undergo significant transformations. The vehicles we will produce in the future will likely require different components, different raw materials and different skills.

Back in March 2020, the Commission introduced its industrial strategy that would support the twin transition to a green and digital economy, to make EU industry more competitive globally, and enhance its open strategic autonomy.

The following day, the World Health Organization officially announced COVID-19 as a pandemic.

The pandemic had huge impacts on the mobility ecosystem and its automotive component in particular. The whole supply chain was stopped. Transport and logistics became a nightmare. The shortage of semi-conductors is still seriously affecting vehicle production. EU vehicles registrations levels in 2021 are likely to be very close to the historically low levels of 2020.

This means that in addition to the twin and green transition we also have to factor in increased resilience. This is one of the messages of the industrial strategy update of May 2021.

We are facing a very complex equation.

How to invest in the twin transition and, at the same time, become more sustainable and less dependent of fragile supply chains?

What will be the industrial and social costs of the transition? Will we have the necessary skills for the new technologies?

Will we have sufficient decarbonised energy? How to accelerate the rollout of electric recharging and hydrogen refuelling points?

We have many open questions.

Still, we have the chance to have an unprecedented recovery plan: NextGenerationEU with more than €800 billion to support recovery and resilience.

The Commission is also currently adapting its state aid environment guidelines to accompany the green transition.

In this context, I am glad to announce the upcoming transition pathways for the mobility ecosystem.

Transition pathways are not a new policy initiative. This will be a co-creation process in partnership with industry, public authorities, and social partners to identify the scale, cost and conditions of the required action to accompany the transition towards a green, digital and more resilient ecosystem.

This process is not limited to the automotive industry and will also encompass the whole mobility ecosystem, including rail and waterborne industries that also face the same challenges and use the same technologies.

As I said there are a lot of pending questions on what needs to be done and what will be the business case.

But we have good precedents to take inspiration from. The example of the European Battery Alliance shows that Europe has the human and financial resources to catch up in many domains. There were many sceptics back in 2017 when the initiative was launched. Since then, two important Projects of Common European Interest for a total of €20billion of private and public funds have been launched.

The Commission working document opening a public consultation on the Mobility Transition Pathway will be published in the coming weeks. I invite you to contribute and become actors of this process.

To conclude I would like to say that the best outcome of this process should ideally be a pipeline of concrete projects with all stakeholders.

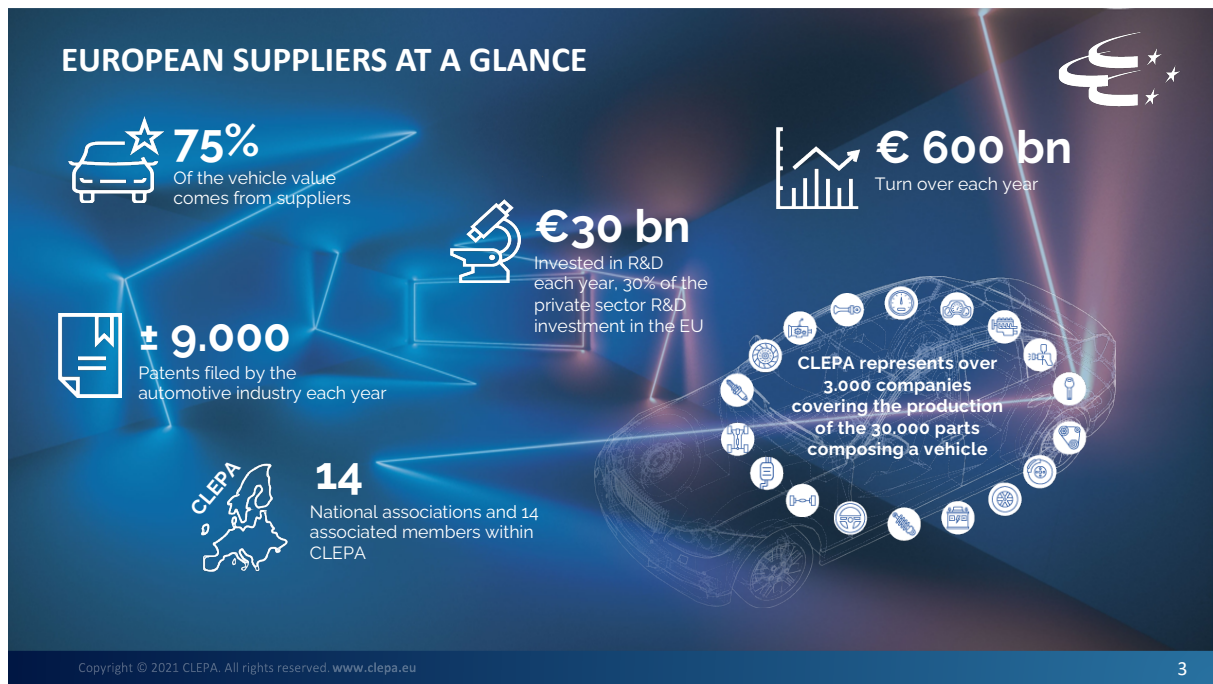
ELECTRICAL VEHICLE TRANSITION IMPACT ASSESSMENT 2020-2040 - STUDY ON WORKFORCE OF AUTOMOTIVE SUPPLIERS

Sigrid de Vries, CLEPA - European Association of Automotive Suppliers, Secretary General



I am going to cover in this presentation:

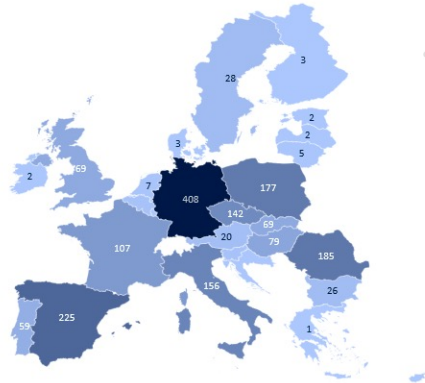
- Context
- Industry at a Glance
- Objectives
- Study Design
- Key Findings
- Call to Action



SUCCESS STARTS WITH KNOWING THE STAKES



Employment in thousands of jobs, automotive supply sector
Source: Eurostat and National Associations



Significant manufacturing employment, up- and down stream
The automotive supply chain employs a significant number of Europeans up and downstream and in adjacent sectors.



Suppliers of raw materials
Demand by automotive suppliers and vehicle manufacturers is responsible for significant shares of employment in downstream supply chains.

Vehicle manufacturing and assembly 1,100,000 jobs	Thermal management 70,000 jobs	Steel supplies 63,000 jobs	Chemical supplies 165,000 jobs
Automotive suppliers 1,700,000 jobs	Motors, batteries, electrical equipment 184,000 jobs	Industrial textiles 40,000 jobs	Machinery 25,000 jobs
Vehicle body manufacturing 155,000 jobs	Tyre manufacturing 118,000 jobs	Semiconductor supplies 70,000 jobs	
Car use services 3,200,000 jobs			

Automotive suppliers directly employ more than 1.7 million people across EU27, on top of 1.2 million with vehicle manufacturers

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CONTEXT



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OBJECTIVES OF THE STUDY



The study answers 3 guiding questions about the impact of the **EV transition on the European automotive supply industry**, with a focus on 7 key automotive markets:



Value-add

What is the impact of different powertrain technologies and component requirements on value-add for automotive suppliers in Europe?



Employment Impact

What is the corresponding effect on employment for automotive suppliers in Europe?



Climate Targets

What would a mixed technology, EV-only or a radical EV-implementation scenario mean for climate targets, value-add and employment for automotive suppliers in Europe?

STUDY APPROACH – 3 MARKET SCENARIOS



	Mixed technology 	EV-only 	Radical
2026	Technology open EURO 7, including Mild Hybrid Vehicles (MHEV) in operation	Technology restrictive EURO 7, Full Hybrid Vehicles (FHEV) favored	Very technology restrictive EURO 7, no MHEV allowed
2030	Equivalent -50% tailpipe CO2 emissions with A-fuels credit: -20g	Equivalent -60% tailpipe CO2 emissions with A-fuels credit: -7g	0g CO2 tailpipe target for new fleet
2035	Equivalent -65% tailpipe CO2 emissions with A-fuels credit: -30g	Equivalent -100% CO2 target for new fleet with A-fuels credit: -10g	Explicit end of ICE sales

Mixed technology scenario: in 2024, less than 1 million EV chargers available in EU; incentives for Battery Electric Vehicles (BEV) purchase but not for the charging infrastructure.

EV-only scenario: in 2024, around 1 million EV chargers available in EU; incentives for BEV purchase and for the charging infrastructure.

Radical scenario: in 2024, more than 1 million EV chargers available in EU; incentives for BEV and large incentives for the charging infrastructure.

KEY FINDINGS



Electrification puts **powertrain employment** significantly **at risk** (potential net loss of up to 275k employees until 2040)
 – In all, 501k jobs at stake in the ICE domain, without counting employment created by electrification



Majority of future value-add in EV powertrain technologies depends on **EU battery production** (70% of value-add)
 – Subsequently, European employment significantly depends on local battery production



A **steep net reduction** of 291k jobs is expected **between the 2030 and 2035** timeframe alone
 – A total of 359k jobs impacted in the ICE domain alone, putting pressure to transform towards future needs (e.g., software, electronics, infrastructure)



A **mixed technology** scenario **mitigates** the impact on employment and creates value-add until 2040
 – This would be driven by hybrid vehicles market share

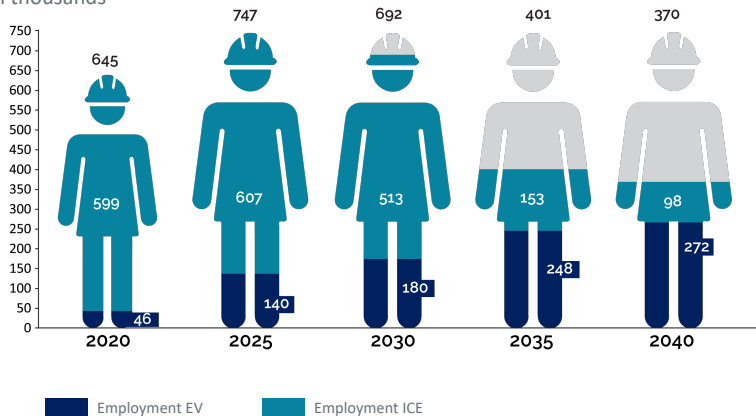


Western European countries will likely be best placed as strongholds in **EV production** (+56,2 €bn value-add until 2040)
 – By contrast, **Central Eastern European countries** will shape the run-down of ICE vehicle production

EV-ONLY SCENARIO WILL SHED HALF A MILLION AUTO SUPPLIER JOBS



Employment in thousands



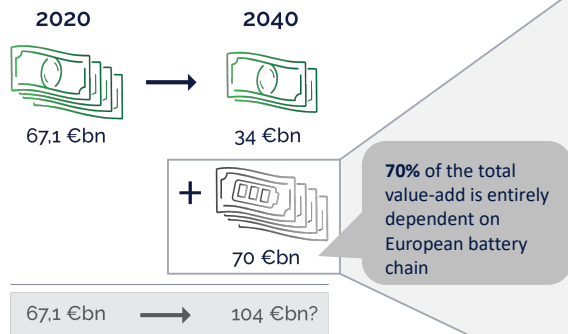
-84% current jobs in ICE

- 501K jobs will become **obsolete** from now until 2040
- This is about **one-third of current workforce**
- EV powertrain creates 226k **new opportunities**, but still net loss of 275k jobs
- **Not 1:1 compensation** from ICE to EV powertrain employment

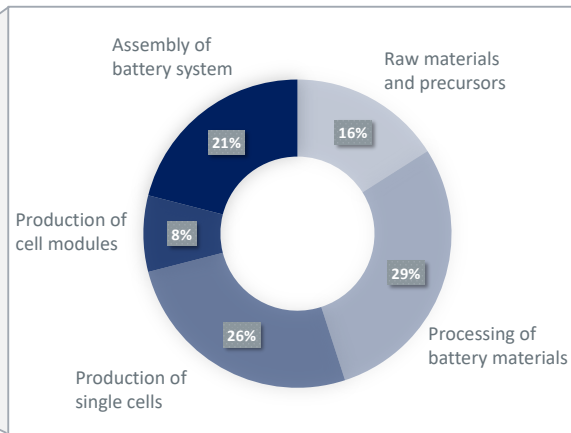
MAJORITY OF VALUE-ADD HINGES ON UNCERTAIN EU BATTERY VALUE CHAIN



Supplier powertrain value-add



Share of battery value-add by area of activity



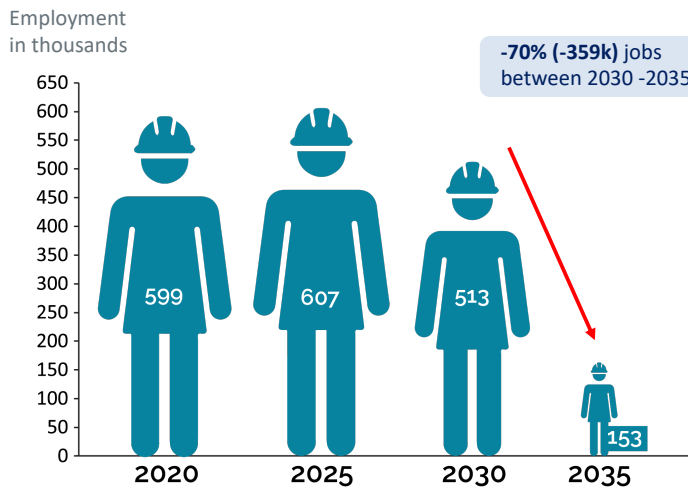
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TRANSITION VS. DISRUPTION – EVERY MOMENT COUNTS



ICE Powertrain Employment



- 70% of the job losses in ICE powertrain production will happen in **just a 5-year period**
- **Very short time-frame to manage social and business impacts** + investments needed (grid, infrastructure, RES...)
- The faster the loss of ICE powertrain (**30-40% of overall employment**) the greater the pressure on regional economies, and less time to retrain workers

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AUTOMOTIVE SUPPLIERS LEFT BEHIND?



Investments needed in ICE engine now with a ban in 2035 on the horizon

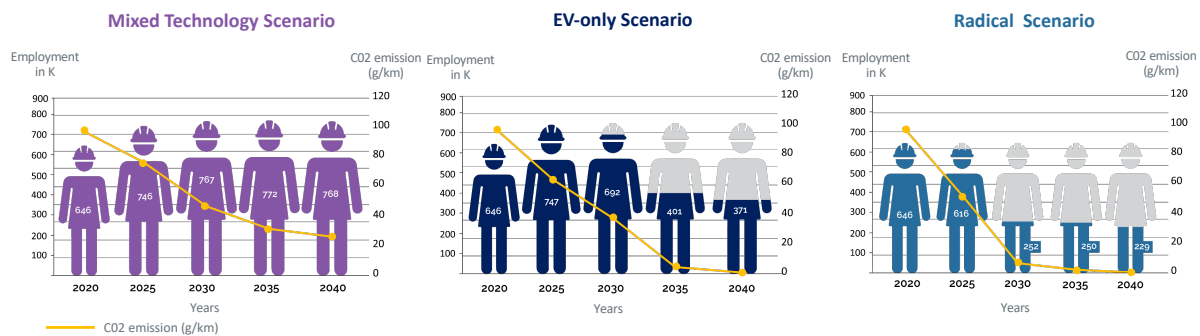


CEE countries will remain highly dependent on ICE powertrain



Highly specialised & SME suppliers have less options compared to OEMs

MIXED TECHNOLOGY SCENARIO PROVIDES THE MOST MANAGEABLE TRANSITION WITHOUT COMPROMISING ON CLIMATE

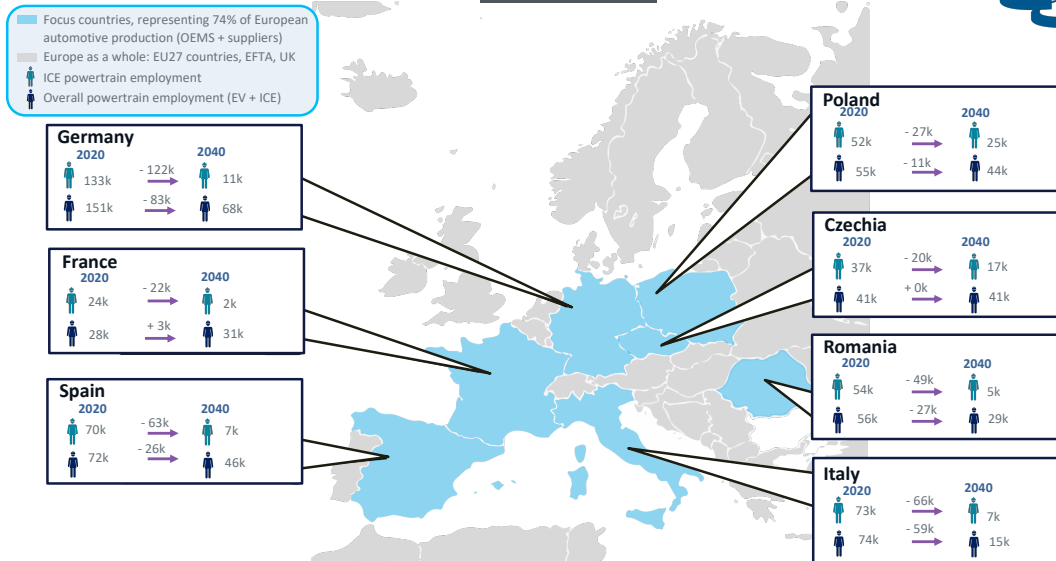


EV-only leads to steep decline in jobs in a 5-year period, radical scenario is completely unmanageable, mixed technology provides employment growth and stability

CO2 is measured at the tailpipe only, the inclusion of a WtW approach, recognising sustainable renewable fuels has the potential to record further emissions reduction

GEOGRAPHICAL BREAKDOWN

EV-only scenario



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CALL TO ACTION TO SECURE A GREEN AND JUST TRANSITION



An **open technology approach** is needed for a **manageable transition** – mitigates employment, creates value-add, does not compromise on climate targets



The **recognition of sustainable renewable fuels** in the CO2 standards through a **crediting scheme** allows for an adjustment period

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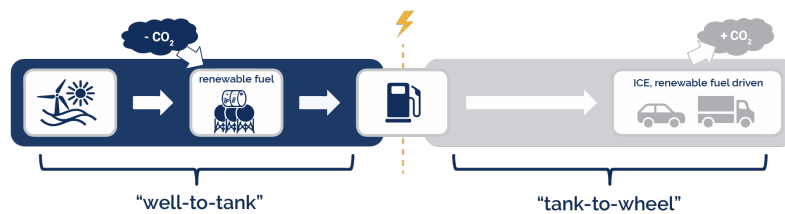
RECOGNISING RENEWABLE FUELS



Weaknesses of the current proposal for CO2 emission standards

- The current proposal does not value the contribution of sustainable and renewable fuels putting at risk the capital-intensive investments that are needed
- Does not address the **transitional phase** of the decarbonisation path towards climate neutrality (in particular, the decarbonisation of the **existing fleet**, the role of the **PHEVs**)
- Societal implications and are not taken into account

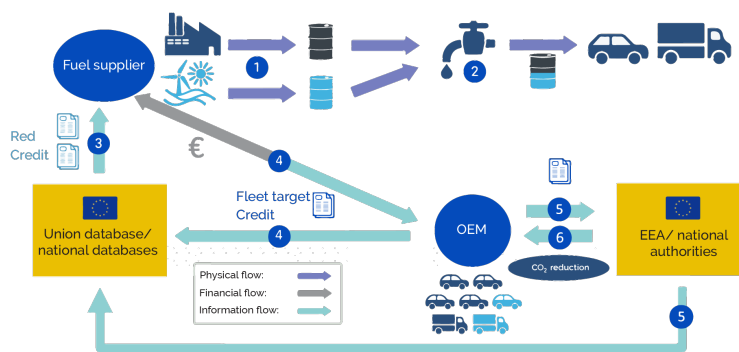
The internal combustion engine is climate neutral when powered with sustainable renewable fuels.



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An overview of the crediting scheme



- 1 RE fuel production
- 2 RE fuels are supplied to final customers (often as a "blend")
- 3 Credits are issued and entered into national and Union database
- 4 OEM buys credits from fuel suppliers, this is reported to the RE fuel database – accounting separation to prevent double counting
- 5 OEM requests crediting against fleet target – responsible authority verifies the validity of credits
- 6 Equivalent CO2 reduction amount is deducted from the initial emission value

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The crediting scheme benefits

	Consumers — Contributes to affordability of mobility
	Industrial scale — The automotive industry has the capacity to invest and scale up production of renewable fuels
	Safety net — Allows choice for use cases where electrification is not (yet) the best solution
	Level playing field — Shifts the focus from banning technology to removing fossil fuels
	Faster and more efficient — Renewable fuels reduce emissions from the existing fleet, no need to wait for fleet renewal
	Beyond SILOS Approach — Create links between legislative tool for more efficiency

Further reading on the functioning of the crediting system <https://www.crediting-system-for-renewable-fuels.eu/>

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AUTOMOTIVE SUPPLIERS' KEY MESSAGES ON 'FF55'



All renewable energy solutions and clean drivetrain technologies are needed to decarbonise the road transport sector and achieve the EU's climate neutrality objective

Technology open approach	Role for renewable fuels	Social & Employment dimension
<ul style="list-style-type: none">• Enable the deployment of all clean drivetrain technologies (BEV, FCEV, ICE/PHEV, hydrogen combustion)• Avoid technology bans leading to an EV-only market• Shift from tailpipe to well-to-wheel approach to account emissions	<ul style="list-style-type: none">• Acknowledge the role of renewable and low carbon fuels, also in reducing the enormous infrastructure costs of an electrification-only approach• Introduce a crediting scheme• Set a more ambitious GHG intensity reduction target in transport sector	<ul style="list-style-type: none">• Address the social impacts of higher carbon price• Consider and address the impact of the proposed measures on employment, especially in regions with a dense automotive suppliers' industry

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RESPONSES

Tsvetelina PENKOVA MEP (S&D, Bulgaria), Industry, Research & Energy Committee, Shadow Rapporteur on Alternative Fuels Infrastructure Regulation



- Everyone, who had to carry out several tasks online this past year, understood the need for a secure, reliant and affordable supply of electricity
- This trend is not going away, on the contrary - if all of the plans for a twin transition are realised by the Next Generation EU Recovery Instrument, this will truly become the basis for the new normal
- I believe that the EU managed to learn its lesson from the past crises:
 - We used the current crisis, not to pour public money for an overall recovery, but to invest in targeted sectors where we can have the biggest impact to improve the climate
- I believe that true decarbonisation will not occur by some miracle technology that will drastically change our way of life:
 - We can experience tangible results in the medium-to-long term only if we manage to implement incremental improvements in all sectors of production and consumption;
- This logic also applies to the energy sector:
 - We need a more integrated way of producing sustainable energy carriers like nuclear, renewable gas or hydrogen;
 - We should find a way to tap into previously unused surpluses of renewable energy production in order to store and produce clean energy so we can overcome the intermittency problems
- Archiving a decarbonised energy production will be one of the main features for securing strategic autonomy of the EU, which was one of the main priorities for us in the upcoming revision of the New Industrial Strategy
 - On top of that, I believe that the energy transition provides an opportunity for deprived regions to invest in new and sustainable ways of energy production, distribution and storage, which will lead to the creation of better-paid and more secure jobs in the future.
- When it comes to the transport sector the most prominent proposals in the Fit for 55 Package are the 2 following files:
 - CO₂ emissions for passenger cars
 - deployment of alternative fuels infrastructure
- I was elected as Shadow Rapporteur for the S&D Group to work on the Opinion produced by the Committee on Industry, Research and Energy for the Deployment of Alternative Fuels Infrastructure
- We are expecting to start the practical work in the coming weeks and we hope to finalise the entire EU legislative process by the summer of next year
- If we want to reduce our net greenhouse gas emissions by at least 55% by 2030 we should address the negative footprint made by the automotive sector
- Adapting the EU's legislation in the field of alternative refuelling and recharging infrastructure is one of the key areas which will secure the uptake of electric vehicles in the future
- The current version of the Directive was adopted back in 2014 and does not set any mandatory targets

- It leaves to the Member States to develop National Policy Framework for the promotion of alternative infrastructure based on their own assessment of their needs

To summarise:

- In the new proposal for a Regulation from 14 July this year, the Commission proposes binding targets for:
 - Electric vehicle charging points:
 - for every battery-electric light-duty vehicle a total power output of at least 1 kW should be provided through publicly accessible recharging stations
 - Hydrogen refuelling points:
 - publicly accessible hydrogen refuelling stations with a defined minimum capacity with a maximum distance of 150 km in between them by the end of 2030
 - Electric charging for stationary aircraft at airports and on shore power supply for ships at ports.:
 - by the beginning of 2030 at least 90% of demand for shore-side electricity supply should be met in maritime ports
 - electricity supply for stationary aircraft at airports should be ensured at all gates by the beginning of 2025.
 - It also contains provisions for EU Member States to ensure coverage of refuelling points for liquefied natural gas (LNG) dedicated to heavy-duty vehicles and LNG refuelling points in maritime ports.
- In the European Parliament, the file has been referred to the Transport and Tourism Committee and we, in the Industry, Research and Energy Committee, have to give an opinion on the industrial aspects.
- Our preliminary position will be to increase the incentive schemes in order to stimulate the demand and increase the uptake
 - Not all Member States have the same starting position
 - In western Europe tax reductions were in place for the past ten years for newly registered hybrid/electric vehicles which was not the case in Central and Eastern Europe
 - As a result, the fleet numbers are significantly different
 - We need more active public procurement schemes for low-emissions transport solutions
- The customers need a clear price-comparison component so it is easier to compare and check the price between recharging stations
- The industry needs a simplified and unified payment method, which does not require additional third party apps, internet connection or closed payment systems.
 - It should be as easy to pay for electricity at a recharging station as it is now to fill in from a petrol station
- We should encourage the uptake of electric transport solutions and not overregulate them or add additional tax burden
 - This is why in the last big file I worked on - the trilogues of the revision of the Motor Insurance Directive, I defended the position that e-bikes and e-scooters should not be included.

Maria SPYRAKI MEP (EPP, Greece), Environment Committee, Shadow Rapporteur on Alternative Fuels Infrastructure Regulation



Everyone wants a clean, fair, and sustainable low-carbon future. To achieve the Paris Agreement "1.5-degree target", the global energy system must align with the decade's necessary decarbonization pathway.

What we do now will significantly affect our collective ability to achieve a net-zero future.

However, to meet sustainability and climate goals, the pace of change must accelerate.

We need a vast expansion of renewables, a smarter and much more flexible electricity grid, and huge increases in the numbers of vehicles and other products and processes that run on electricity.

In that direction, we need clear, transparent and firm targets.

To get there, we have to start now.

This transition is toward clean electricity as a principal fuel, combined with "smart" digital technologies that make it possible to take full advantage of the growing amounts of cheap renewable power.

Combining widespread electrification and digital technologies on one hand and renewable power on the other can become a central pillar of energy and climate policy, given their numerous benefits.

Three major areas would play a significant role in achieving the RE-electrification transition: buildings, transport and industry.

Concerning the built sector, to deliver this new system in a cost-effective manner, simply switching to electricity in end uses and building new renewable generation alone is not sufficient.

To power the transition to electrified mobility, we need smart connections in buildings.

Smart charging can help prevent the transition to:

- an electrified mobility system from requiring massive, costly reinforcement of grids,
- fuelling the temptation to fire up gas plants, and
- delivering additional electricity needed at peak times.

The Energy Performance of Buildings Directive (EPBD) offers a unique opportunity to help consumers switch to smart electromobility – minimizing the cost, to the power system, and the environment.

Not only that, electric vehicles' batteries can function as storage to help manage the network.

Since a car can hold as much energy as a typical household consumes in a few days, connecting it to a smart network could change electricity grids.

Smartly managed, electric vehicles not only emit less CO₂ than combustion cars, but they could also reduce total grid emissions.

The Alternative Fuels Infrastructure Regulation known as AFIR strategy, should be a strategy, that will force us to install millions of smart charging points in buildings so that people can charge their vehicles wherever they are customarily parked.

But, unfortunately, until now, according to the Greek press, 70% of all chargers in Europe are concentrated in just three countries - the Netherlands (66,665), France (45,751) and Germany (44,538) and in my country, Greece, there are only 0.2 Public chargers per 100 km.

But there are some sectors, such as long-haul trucking, shipping and aviation, where direct electrification appears difficult today.

To decarbonise maritime transport, we need to move faster and more decisively on a wide range of policy measures.

The main measures are:

- technical, with the design and alternative fuels
- operational with speed reductions, weather-routing system, and wind assistance; and
- market-Based like carbon levy, emission taxes or tradable emission allowances.

In that perspective, the shipping industry faces two particular challenges:

- driving energy efficiency and behavioural change to reduce energy demand; and
- speeding up innovation and infrastructure investment to enable decarbonization after 2030.

Technology and innovation are key enablers of maritime decarbonisation.

The combination of fuels, like biofuels and electrofuels, including alcohols produced from renewable energy, and biodiesel, including green methanol in combination with battery technologies and new propulsion technologies, can meet the regulatory requirements and reach net carbon neutral cruising.

Additionally, green hydrogen could be used as a building block to create alternative maritime fuels

In fact, according to the IEA's Global Hydrogen Review 2021, "the global production of low-carbon hydrogen is minimal, its cost is not yet competitive, and its use in promising sectors such as industry and transport remains limited – but there are encouraging signs that it is on the cusp of significant cost declines and widespread global growth".

With the upcoming Alternative Fuels Infrastructure Regulation (AFIR), the EU will set targets for rolling out public charging infrastructure to ensure seamless routes across the continent.

That is the first step.

Then, European standardization organisations must develop robust standards to allow Electric Vehicles (EVs) to communicate with the building and the grid.

Of course, differences related to national specifics will have to be taken into consideration, as well as different starting points of member states.

Those technical standards should make it easy for users to connect their devices and communicate within buildings and with the grid.

Standards can serve to remove complexity for users and drive down technology costs.

With parking lots turned into charging spaces and robust standards in place, houses and workplaces can become a cornerstone for integrating energy, mobility, and buildings.

Through the 'right to a smart plug,' with AFIR and the revised EPBD, we could achieve the transition to clean mobility in a climate-neutral Europe.



Alexandre PAQUOT, EUROPEAN COMMISSION, DG Climate Action -
Head Road Transport
(Points noted from his presentation)

Good evening dear colleagues, thank you for inviting me for this very interesting meeting and in particular the presentation by Mrs de Vries about this new study. We have not seen the study yet, so I would just say some general comments on it.

But before that, I would like to make a point that Mr Gieseke also made in terms of the importance of the overall package to be looked at in a very current way, because I think we have been discussing now the CO₂ standards quite a lot. But it should not be seen in isolation, because here we are talking about a set of policy measures which aim at reaching this climate neutral objective by 2050, for the overall EU, for the whole economy.

So, we cannot only discuss, or look at, the automotive sector, the suppliers' industry in isolation. We have to look at it in a very broad sense.

This is why I wanted to stress here that besides the CO₂ standards for cars there are very important other interests. The Alternative Fuels Infrastructure Regulation (AFIR) was already mentioned several times but also several pieces of legislation related to fuels, because we know that we will need to decarbonise existing fleets and also to decarbonise the power sector.

So, we have there a number of proposals on the table in particular the Renewable Energy Directive which proposes this reduction of greenhouse gas emission intensity of fuels by 2030.

We also have the new ETS, which will also drive low carbon fuels into the market.

We have the Energy Taxation Directive which also will incentivise the best performing fuels and we have the ETS, the Renewable Energy Directive which will decarbonise the power sector over time.

It is very important to keep that in perspective because we also hear there is alternative to what the Commission is proposing in terms of the CO₂ standards which would be to have zero low carbon fuels into the road transport sector, in particular cars.

And probably, that is my question to Ms de Vries, this mixed technology approach has this scenario: there will be much more e-fuels and synthetic-fuels going to cars and vans for a long period of time. But we will be happy to look at the details of this scenario.

What we have seen in all our modelling work, all our analytical work is that these synthetic fuels will be somehow scarce. This is not going to be a type of fuel widely available because this costs a lot of energy to produce - renewable energy which we will need for this purpose. This will have limitations in terms of carbon source as well.

So, we really need to focus on the use of these fuels towards the sectors which are the most difficult to decarbonise. Here you hear us often speak about aviation and maritime sectors. This is also why the Commission has made specific proposals to really incentivise the use of these synthetic fuels into these aviation and maritime sectors. Because this is where there are no alternatives in terms of technologies.

We need to steer this fuel where it is most needed. That does not mean it will not go to roads, we will need that particular for the existing fleet, but for the longer term if we look at the overall picture and the overall economy, we will mostly need these fuels in other sectors. And this is why it is one of the reasons, and that it is not the only reason, why we do not think that having this crediting system in place within the CO₂ standards would really make sense.

It could be more costly also for manufacturers. It will be more costly for consumers. It will blur responsibilities and not give really a clear signal to industry on where is this transition going.

Now, having said that, we also know that this transition towards full zero emission vehicles by 2035 is not going to be a simple transition, and that will require a lot of support.

That is where I am sure we can come close to what CLEPA has in mind, but again we will look at the report and what Mehdi Hocine was saying: that this transition needs to be accompanied and supported.

We know that. There are already a lot of funds available, so Mehdi was referring to the Recovery Plan but I would also mention some others like the ESF Plus, the European Social Fund, the Regional Funds, the Transition Funds. There is money around.

The question is to make sure that this money is rightly used and going into the right way, into the right companies who really need these funds for making this transition possible and just.

That is why this dialogue that Mehdi was referring to, this Transition Pathway, will be so important because we really think that having this dialogue with all stakeholders, with Member States will help to have a better understanding on where the issue is and how we can best support this transition.

So, we very much say, in a mood of dialogue but keeping in mind that for us this transition is not something that we can really question.

I think that around the table we will kind of all agree that we need to go to this climate neutrality by 2050, so we will be very interested to look at this mixed technology approach, if this is really possible to have this mixed approach together with this climate neutrality by 2050.

We need to look at the broad picture, so these fuels need to be available for other sectors as well. So, having said that I am happy to continue the dialogue with all of you.

PRACTICAL IMPLICATIONS OF MANAGING THE TRANSITION

Kathrin Watson, BOSCH, Head EU Office Reskilling & Upskilling the Workforce

(Presentation available from Bosch –

unavailable in time for EFM Website Report finalisation)





Hanna Blankemeyer, ZF, Head EU Office

The Contribution of Different Technologies. Thank you for inviting ZF to this Forum and for the opportunity to share our transformation pathway towards electrification.

As a more than a 100 year- old company, having started out improving transmissions for the Zeppelin, we know transformation processes well. With €32.6 billion sales, 153,522 employees and €2.5 billion devoted to R & D, today ZF is a globally active technology company but still deeply rooted in the South of Germany as a foundation-owned entity. We are supplying gears to all vehicle categories, to bicycles, to agricultural machinery or to wind turbines. Every fourth wind turbine globally has a ZF gear.

Apart from the drivetrain activities, my colleagues work towards finding answers to tomorrow's mobility needs:

- Building autonomous shuttles that are already running today in the Netherlands or Dubai.
- Making vehicles safer and more stable with our vehicle safety and motion control businesses.
- Shifting a hardware driven business towards software solutions.

Although ZF is going into this transformation prepared, with 30,000 colleagues directly linked to the internal combustion engine. We are currently building up an unprecedented re- and upskilling initiative to soften the impact of the transformation - which will undoubtedly be hard. How hard will depend on the legal framework as Sigrid de Vries from CLEPA explained earlier.

Our strategy is to invest into battery-electric vehicles (BEV) and Plug-in hybrid (PHEV) vehicles simultaneously. Why Plug-in hybrids?

Firstly, from an industrial point of view, adding an electric motor to our transmission, transforms a conventional product into a CO₂ saving technology. The e-motor supports the climate, the transmission saves jobs. The labour intensity for a PHEV compared to a BEV is substantially higher. Investing into Plug-in hybrids allows us to work with existing competences, skills and the existing machine park. It allows a transition over time, avoiding a disruption of value-chains. This means: had we gone straight into e-motor production, this would not have been possible in the existing plants. ZF believes we can and we should strive to make the Green Deal also an industrial success.

Should we support any Plug-in Hybrid? No. PHEVs with 100 km range have the potential to significantly add towards market acceptance of e-mobility - especially for one-car households. Over 90% of daily trips are under 40 km. With an electric range of 100 km, most of daily mobility needs are covered in fully-electric mode. With geofencing capabilities, these vehicles would be able to determine urban zones and automatically switch to electric mode. For the residual use, outside of city centres, using synthetic fuels, Plug-in Hybrids can be driven entirely climate-neutral.

One organization which discusses the role of PHEV beyond 2035 is the California Air Resources Board (CARB). They are currently considering extending their Zero Emissions Vehicle mandate to include a 20% quota for Plug-in Hybrid vehicles. Being a climate front-runner, strict conditions would be connected to this extension: 50 miles (80 km) e range and a performant e motor.

The motivation for CARB is that they have found households with an average income of \$100,000 annually, have a strong preference for Plug-in Hybrids.

This could be a relevant insight for the 27 EU Member States: Each of course follows an individual decarbonisation path depending on national characteristics, including the economic situation, fiscal incentives, income distribution, living conditions. California's path underscores the relevance of Plug-in Hybrids for the acceptance of electric mobility in the wider population – even in affluent California.

To sum up:

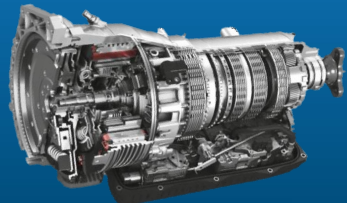
Plug-in Hybrids are a bridge to electric mobility, also for Europe. It allows a socially acceptable transformation for consumers, for plants and workforce.

And, PHEVs remain an important fall back option beyond 2035, in case:

- there is no seamless charging infrastructure
- green electricity is not abundantly available
- battery prices stay elevated.

Making the Green Deal an industrial success

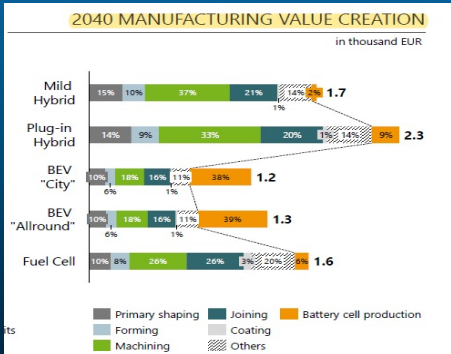
Plug-in Hybrid transmission: combining the best of both worlds



Electric engine
means
lower CO₂ emissions

Gearbox
means
more jobs


The added manufacturing value of Plug-in Hybrid powertrain is significantly higher than that of battery electric vehicles and fuel cells:



Vehicle Type	Primary shaping	Forming	Machining	Joining	Coating	Battery cell production	Others	Total Value
Mild Hybrid	15%	10%	37%	21%	12%	1%	1%	1.7
Plug-in Hybrid	14%	9%	35%	20%	13%	14%	9%	2.3
BEV "City"	10%	18%	10%	11%	1%	36%	1%	1.2
BEV "Allround"	10%	18%	16%	11%	1%	39%	1%	1.3
Fuel Cell	10%	21%	20%	20%	22%	2%	1%	1.6

With the Plug-in Hybrid, we build on existing competences, skills and machinery

Plug-in Hybrids allow a transformation of plants and workforce over time, avoiding a disruption of EU value-chains



Source: "Antrieb im Wandel II", VDMA (2021) © ZF Friedrichshafen AG 4



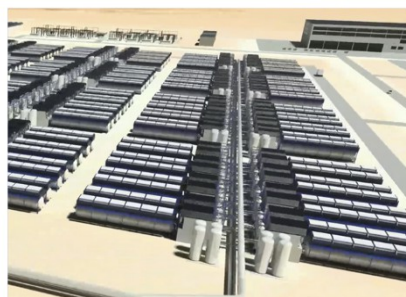
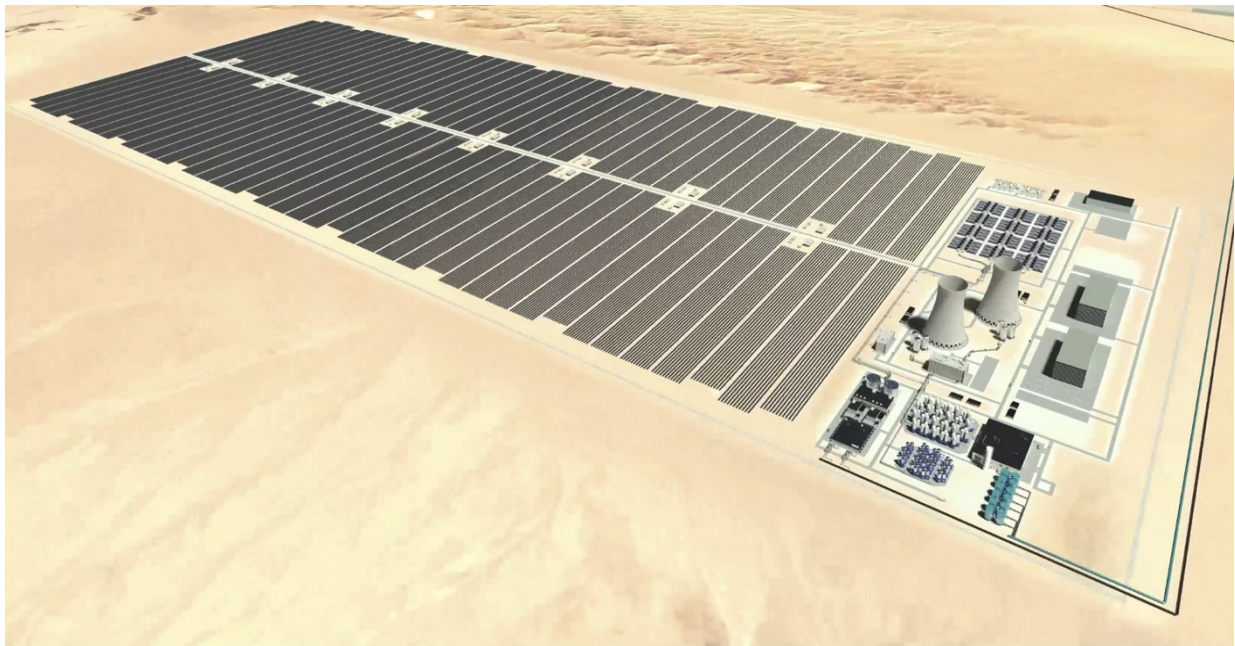
Thorsten RIXMANN, OBRIST Powertrain GmbH, Director Marketing & Communications

The SME Perspective

OBRIST is an engineering office and develops technical solutions primarily for the mobility and energy sector to reduce, avoid or eliminate emissions. All of our technologies are designed for a global market

Global warming, the biggest problem of humankind, can finally be solved! We have generated about 85% of the total world energy demand by using fossil energy which dramatically increased the content in the atmosphere.

For the first time in the history of humankind, we can now generate renewable electricity cheaper than any other form of energy, and its capacity is unlimited. The process will take place in the sunbelt of the Earth.



aFuel® Plant Concept

In today's world, we need to act immediately to reduce CO₂ emissions to become CO₂ neutral. OBRIST commits to provide a liquid fuel solution with a CO₂ negative cost: aFuel®. Applications for aFuel® are wide, as it has great properties for mobility providing affordable solutions with low modifications required for the infrastructure.

The Modern Forest concept combines eMethanol production with energy from photovoltaic and CO₂ from Direct Air Capture and C-Sink to permanently store in a stable manner CO₂ into graphite. Low-cost energy generation in the sunbelt of the earth captivates with the possibility to transport and distribute solar energy/solar power in liquid form worldwide with the existing infrastructure. The use of filling station systems worldwide is possible.

This CO₂ negative fuel will be used with our HyperHybrid® Concept, a serial hybrid powertrain using a zero-vibration generator running with eMethanol.

“Way to zero” is not enough. With this global approach on the value chain of aFuel®, OBRIST commits to reduce the global CO₂ emissions by providing a powertrain that works globally, is affordable, and is in fact “zero emission”.

We will demonstrate at the beginning of 2022 how we can reach -24gCO₂/km combining HyperHybrid® & aFuel®.

This project is supported by the Federal Government of Science in Germany and the Max Planck Institute for Chemical Energy.



Prototype Car Mark III

We are currently manufacturing 10 prototype vehicles, as part of the “Carbon 2 Chem” project.

These prototype vehicles are equipped with our HyperHybrid® Powertrain (serial hybrid) and a “zero vibration generator” powered by green methanol.

The vehicle continues to drive purely electric and receives electricity from the “outside” (plug-in) and/or from “inside” through a highly efficient generator.

Our powertrain can therefore be used globally and is affordable in comparison to other electric vehicles. Particularly important: due to the production of aFuel®/eMethanol as shown in the “Modern Forest”, the emissions are negative. Therefore – 24 g CO₂ / km.

This technology can also be used on water/boats and in the air/small aircraft, helicopters, etc.

We kindly ask you all for an open discussion to:

- be open to new technologies - the best solution wins the race and not one-sided regulations.
- recognise that individual mobility must work on a global scale, must be affordable, and genuinely emission-free! BEV has emissions - have a look at the energy mix in Europe. For example 98g CO₂ / km for the ID.3.
- energy self-sufficiency in Europe leads to a massive shift in the social balance because:
 - Need much more Energy through further economic growth, conversion to BEV, and the ban on fossil fuels (oil & gas) for heat generation, infrastructure costs, etc. are becoming significantly scarcer and more expensive.
 - The risk of a blackout due to new energy that cannot be stored (wind & photovoltaic) increases.
 - A certain proportion of the population will no longer be able to afford a vehicle in the future if we convert everything to BEVs
 - In order to keep the energy costs in relation, we need green energy that is storable, transportable and cheap - aFuel!

With this in mind, we urge you to look at facts and become a technological leadership together. Small and medium-sized enterprises are the backbone of the economy. Please also listen to these companies – even if we do not shout so loud.

CONCLUDING REMARKS

Antony Fell, EUROPEAN FORUM FOR MANUFACTURING, Secretary General

We have heard excellent presentations this evening. I would like to thank the two European Commission speakers, MEPs and manufacturers for their contributions. Manufacturers, I am sure, were encouraged to hear that the Commission and MEPs would welcome continuing input on this key dossier.

Our next meeting, on the Sustainable Products & Consumption Package, will take place on Wednesday 26 January 2022 during the Parliamentary Committee week, at the slightly later time of 18h00-1930 at the request of the MEPs.

We offer you our very best wishes for Christmas and the New Year and I now formally close this European Form for Manufacturing virtual meeting.

