



GREEN DEAL & ELECTROMOBILITY

Wednesday 30 September 2020
18h30 - 20h00
Virtual Meeting

WELCOME & INTRODUCTION

Chaired by Maria da Graça CARVALHO MEP, (EPP, Portugal)
Industry, Research & Energy Committee

I want to thank you for the kind invitation to moderate this meeting. Thank you to the participants and MEPs who all have a busy agenda these days. Nice to take the time to discuss this important challenge for the future



The topic we are discussing today is really a challenge because the electromobility and the transport in general is a subject we need even more research & technology, solutions to decarbonise.

It is very important that we are able to decarbonise the transport industry with use every day to the different kinds of transport: shipping, airplanes, and some of these areas still pose technological problems.

Research and innovation is so important to achieve the objective of the Green Deal and the climate objectives in a sustainable way that will be friendly for our economy and permit that we can still retain some of our standard of life because everyone needs to be able to continue to travel. Mobility is very important. We would like to continue to travel, probably not as much as in the past but in a sustainable way.

On batteries, we need to ensure a longer lifetime and to have a solution for different kinds of transport.

The Commission has considered that the Green Deal with digitalisation is one of the priorities, and in particular the battery element. The budget has promoted itself the battery. The battery is a part of the solution to decarbonise the transport sector.

We need to compare with other solutions of course but it is on the mind of everyone, the policy makers, the Commission, the Council, the Parliament.

The battery will be part of any scenario that we will have in the future for decarbonisation of the transport sector.

Many things to discuss during this EFM session.

KEYNOTE SPEECH

Mattia PELLEGRINI, EUROPEAN COMMISSION DG ENVI, Head of Unit Circular Economy & Green Growth
(Points noted from his presentation)



We have had several meetings on technical batteries. We are now very close to the adoption of the proposal by the European Commission. The battery is one of the key tools to decarbonise Europe with the target of 2050 for full decarbonisation of Europe.

Those proposals are going to play a very important role:

- from an energy point of view;
- from an environmental point of view; but also
- from a competitiveness point of view.

The idea is to have sustainable battery production in Europe and also to make sure that battery production takes place in Europe.

Since the launching of the Battery Alliance there has been a massive amount of investment in Europe. When we started to work there was an estimate of between 10 to 20 giga factories in Europe, now there are at least 25 giga factories in Europe. So, for example there are Saft and Northvolt which are appearing on the market. Clearly the market is developing.

Stable Regulatory Framework

It is very important that we have a stable regulatory framework. This proposal then comes at the right moment.

What is important:

- It is a proposal that will cover all types of batteries – from portable batteries to industrial batteries. So not only electrical vehicle batteries although of course, there will be a number of articles of this proposal which will focus on electrical vehicle batteries
- We will try also to include in this proposal the new types of batteries which are appearing on the market which are link to light mobility – for example for bikes and scooters.
- The idea then is to cover all types of batteries and then to differentiate because not all provisions will apply to all types of batteries. Some of those provision of this new regulation will apply to portable batteries, some to electric vehicles, electro batteries and some other also to mobility batteries.

What is also important is:

- that we are going to try to cover the full value chain of the batteries, from the sourcing of the batteries to the end of the life of the batteries and to second life batteries.

So, in terms of sourcing this will apply mainly to electrical vehicles batteries.

For industrial batteries there will be obligations all the way down the value chain. There will be an obligation regarding usability relating to the supply of raw materials. When sourcing there will be an obligation in terms of recycling. We will try to cover the full value chain: ie the sourcing of batteries, the end of life to second life batteries. When sourcing, there will be obligations in terms of recycling.

There is already the “conflict mineral legislation” which applies to certain types of raw materials, notably gold. This regulation will apply to materials like cobalt and lithium which are used in batteries’ production. This is in term of sourcing.

Placing on the Market.

What are the conditions to place a battery into the European market?

- There are going to be a number of sustainability requirements. The most important one is related to carbon footprint.
- The idea is that there will be an obligation for batteries producers, - electric vehicles batteries & industrial batteries – to declare what is the carbon footprint of those batteries.
- Then in a second stage we are also going to develop the performance classes – and a threshold before placing batteries into the market. That means that batteries below that threshold can no longer enter the European market.

What we have in mind is the same principles as apply for eco-design of fridges - with the performance classes for fridges with A, A+, A++. Consumers know the energetic performances of the fridges, and they can choose. The same will apply in the performance classes for batteries.

Performance

They are a number of raw materials for example cobalt or lithium. All of these at the moment are imported. For example, cobalt is imported from Congo, lithium is imported from Chile.

To regulate the performance and the durability of batteries. The idea will be to mandate that a certain percentage of battery materials come from lithium and cobalt and take into account mandatory recycling. We will take into account the lifetime of a battery before making these obligations.

In order to have a mandatory recycle content in terms of secondary life, we need to make sure that they are already sufficient batteries into the market.

We want to reassure also, in terms of timing, that we are not putting these obligations before 2024 – 2025 but rather for 2030 because we have to take into account when there is a sufficient amount of batteries into the market. There will be a set of sustainability criteria to be respected if you want to place a battery into the European market.

The way we have design this regulation is not a protectionist measure, because it will be applied also to European producers. No matter if you are a Chinese producer or European producer, there will be obligations of recycling content, of carbon footprint declaration.

Essentially, what we will bring is a certain level of transparency to the market.

In a second stage, we will remove from the market low performing batteries. This will be for any types of batteries, wherever the nationality of the battery's producer.

After that, we will have collection rates. Of course, when the battery's life comes to an end you need to collect. What is interesting is what we are envisaging for collection rates, (of course we are going to cover all sorts of portable batteries).

You might be aware that for portable batteries there is a current target of 45% collection for the batteries used at home and half of the member states do not comply with that.

The ideas are to increase the target - we are considering a target of 65% collection rate for 2025 and then 70% for 2030. This is still in discussion at the political level of the Commission.

But indeed, we are significantly increasing the collection of rates for portable batteries.

Then for electrical vehicles batteries and industrial batteries we have an Article in the Regulation that says essentially that what it is placed on the market needs to be collected. So, we have sort of implicit collection rate of 100%. We don't want any of these batteries to be lost into the market.

Finally, what is also important, is that after the collection you can go either for the recycling as a battery or a second life. Electric vehicle batteries can be repurposed in order to be used for energy storage. There is an estimate that says that at least 30% of them could serve energy storage use. The idea is to insert in the regulation a certain of criteria under which a second life will be allowed.

Then, of course, it will be to the market to decide. We do not want to mandate an obligatory second life for batteries. We just want to lay down that at the end of his first life the battery is for energy storage.

Finally, what is also very important is that there will be extended producer responsibilities and obligations. Because this will cover all types of batteries, organised by the producers themselves in each of the members states to collect batteries. And we will reinforce this extension of responsibilities and obligations also with the establishment of a Register for all batteries placed into the European market.

These are the main components of this proposal.

As you may recall from the Green Deal, batteries were the only proposal for which there was a specific dateline for October 2020. We are a few weeks late. We are working non-stop with my colleagues. It is a technical subject.

The last element is that there will also be a digital passport for the batteries together with an open dataspace. We are still working on it. As you know, there are different prototypes of digital passport for batteries. So all this information will be available on-line and can be stored on-line, and can be accessed on line. Some of the information that we plan, some will be accessible from B2B, or some of them from B2C also to the final consumer.

Regarding the timing, we are planning to adopt this at late November- very soon, it is a matter of few weeks.

Of course, it will be very important to work with you the Members of Parliament, and the Council in order to finalised this proposal as soon as possible.

We are aware that this is an ambitious plan for adoption. This proposal is extremely complicate and complex.

We need to work collectively together. It is what we do inside the Commission. There is an enormous amount of intellectual thinking. It is also a physical effort.

We understood the need to come up as soon as possible with a proposal, but indeed once we table the proposal this is only the "start of the game" because of course we need to take into account the co-legislators and to work in a constructive way with you as co-legislators.

INDUSTRY & MEP PRESENTATIONS

Christian ROSENKRANZ, CLARIOS, Vice President Industry and Governmental Relations EMEA; EUROBAT “Battery Innovation Roadmap 2030” white paper

Clarios - “Energy storage solutions for the vehicles of today and tomorrow” - is the world's leading provider of advanced energy storage solutions. We are uniquely positioned to meet the growing demand for energy storage technologies. As the world's largest manufacturer of automotive batteries, we supply around 150 million batteries to manufacturers and retailers in over 150 countries every year. Clarios manufactures one in three batteries worldwide.



- Our products and innovations are developed, assembled and distributed by a team of over 16,000 employees in a total of 56 manufacturing, recycling and distribution centres worldwide. Our product portfolio includes leading brands such as VARTA® and OPTIMA®. We are determined to shape the future of mobility by providing advanced battery technologies that can support the vehicle requirements of tomorrow.
- More than 1,300 employees from over 40 nations work at our EMEA campus in Hanover, Germany, where our EMEA headquarters and a production plant is located. In Hanover we develop, test and manufacture the latest battery technologies for cars and heavy commercial vehicles. In addition to Germany, Clarios also has production facilities in France, Spain, the Czech Republic, Turkey and a joint venture in Saudi Arabia.
- In total, our EMEA team includes more than 3,300 members with production sites in Germany, Spain, Czech Republic and France who enable the production of around 44 million batteries per year. In order to stay close to our customers and guarantee them an optimal supply, we have established distribution centres, representative sales and marketing offices throughout Europe.
- Every single employee is important to the well-being of our company. Clarios promotes an international culture that encourages excellence, a safe working environment, teamwork, integration, leadership and growth.
- A commitment to sustainability has also been part of our company's core philosophy from the very beginning. Today, we have created one of the world's most successful examples of a circular economy. We design, produce, transport, recycle and recover vehicle batteries in a closed loop system. Our goal is to ensure that all vehicle batteries are designed responsibly and can be recycled and reused economically and responsibly.

White Paper: Battery Innovation Roadmap 2030

On 5 June 2020, EUROBAT launched its “Battery Innovation Roadmap 2030” at a webinar, attended by around three hundred people, featuring Executive Vice-President of the European Commission Frans Timmermans and MEP Claudia Gamon, alongside EUROBAT's Marc Zoellner, Christian Rosenkranz and Bernhard Riegel.

Key Messages:

- The EC has announced the EU Green Deal last year with a decarbonized society by 2050, and an important milestone in 2030 to reduce Greenhouse Gas (GHG) in the EU by 55%
- In order to achieve this goal, the European battery industry offers already today a wide range of battery solutions covering the automotive, stationary, utility and non-automotive transportation sector – and we continue to invest and to innovate in the next years.

- The combined capacity of our plants in Europe exceeds over 100 GWh of produced batteries annually, and provides a stable base line to support the ambitious goals of the EC.
- However, in order to install the capacity needed to achieve the 2050 goal, EUROBAT advocates to embrace the full mix of battery technologies to meet future market demand, estimated to be three times today's market by volume in 2030, and will also provide Europe with strategic advantages in terms of competitiveness and self-sufficiency in material sourcing and manufacturing.
- What is equally important to the capacity of production is the capability to integrate the cell electrochemistry into an innovative system solution, which is a reliable and safe energy storage tailored to each individual application.
- We have laid out in the White Paper, that all electro chemistries have an innovation potential we continue to realise and we would like our efforts to be recognised by the next Framework Programme of the European Commission, and we have visualized that the electro chemistries can also help to complement each other with their specific advantages and development needs.

To conclude I would like to say a few words about EUROBAT. It is the association for the European manufacturers automotive, industrial and energy storage batteries. EUROBAT has more than 50 members from across the continent comprising more than 90% of the automotive and industrial battery industry in Europe. The members and staff work with all stakeholders, such as battery users, governmental organisations and media, to develop new battery solutions in areas of hybrid and electro-mobility as well as grid flexibility and renewable energy storage.

Karsten Kurz, EXIDE TECHNOLOGIES GmbH, Director Environmental Affairs, Europe Exide Technologies GmbH
EUROBAT Leader Environment, Health and Safety (EHS) Cluster



For more than 130 years, Exide Technologies has been powering the world forward as a global provider of stored electrical-energy solutions for the automotive and industrial markets. Leading car, truck and lift truck manufacturers trust in Exide Technologies as an original equipment supplier. Exide also serves the aftermarket through a portfolio of successful and well-known battery brands.

Exide's EMEA and Asia-Pacific headquarters are located near Paris, France. With 9 manufacturing facilities in 6 European countries and around 5,000 employees across the region, Exide achieved a turnover of \$1,5 billion in fiscal year 2020.

Exide Transportation manufactures batteries for light and commercial vehicles, as well as for agricultural and marine leisure applications. Industrial markets – under the division GNB Industrial Power – include efficient energy storage solutions for motive power applications such as lift trucks, cleaning machines and other commercial electrical vehicles, and for network power applications such as telecommunications systems, renewables, and uninterruptible power supply (UPS).

Exide's portfolio covers standard and advanced lead-based batteries as well as lithium-ion battery technology to meet the latest market requirements. Exide also provides service, chargers, accessories, and other added-value tools & services to its customers.

Two R&D facilities in Europe enable the company to drive innovation and continuously improve energy storage solutions for the challenges of today and tomorrow. With three state-of-the-art recycling plants in Europe, Exide is committed to environmental sustainability.

What Eurobat is asking for is the following:

1. Support the production of all battery technologies in Europe
 - Different battery technologies (lead, lithium, sodium, nickel) are currently available
 - Batteries serve different market segments: there is no "one-size-fits-all" technology
2. Ensure a coherent legislative framework on batteries
 - Coherence is needed between Batteries Regulation, ecodesign, End of Life Vehicles Directive, Waste Shipment Regulation, REACH and Occupational Health and Safety (OSH)
3. Hazardous substances: from hazard-based to risk-based approach
 - All battery technologies use substances that have hazardous properties
 - Batteries are sealed articles with no risk of exposure to users and maintenance operators
 - Automotive and industrial batteries are already collected and recycled in the EU
4. Introduce carbon footprint declaration and threshold for electric vehicles (EV) batteries
 - To initially apply only to lithium batteries for e-mobility
 - Scope extension to other technologies and applications to be assessed at a later stage
5. Introduce a notification, verification and validation system of batteries that become waste
 - Automotive and industrial batteries are already collected and recycled in the EU
 - Data gathering on batteries available for collection needs to be developed
 - Collection targets based on sales or statistical models would not deliver real benefits
6. Revise and update the recycling efficiency targets included in the Batteries Directive
 - Conduct a feasibility analysis on each numeric target
 - Take into account the differences between each battery technology
 - Clarify the recycling efficiency reporting obligation and methodology to be used
 - Introduce a 'grouped' target for key active materials and metals (e.g. nickel, lithium, cobalt, copper)
7. Refrain from introducing minimum levels of recycled content in new batteries
 - Given the growth of battery sales, not enough secondary materials will be available
 - Secondary materials cannot be reliably distinguished from primary materials
 - Risk of giving a direct competitive advantage to non-EU producers
 - A minimum level of recycled content is in direct contradiction with the promotion of second life
8. Ensure a level-playing field between first and second life batteries
 - High amounts of key materials will be stranded in underperforming equipment
 - Second life batteries will have lower performances than most recent generation stationary systems

- The Extended Producer Responsibility (EPR) shall be transferred to the remanufacturer
9. Classification: create sub-categories of industrial batteries
 - To facilitate targeted end of life management, new sub-categories for EV traction batteries and for small industrial batteries (e.g. e-bikes and residential storage) are required
 - Refrain from introducing a weight limit between portable and industrial batteries
 10. Apply IEC Standard 62902 on colour coding of batteries to facilitate sorting and collection
 - Consider the introduction of a digital passport, with QR code or bar code
 - Include information disclosure requirements on supply chain due diligence obligations and carbon footprint

Jerome Maironi, GARRETT MOTION, Senior Vice President
& General Counsel, Government Relations



Garrett is a global automotive components supplier:

- For more than sixty years, Garrett has been making turbochargers for over forty automotive manufacturers around the world for vehicles of all sizes - from small passenger cars to trucks to large industrial machines. There are more than a hundred million Garrett turbos in use today. Key contribution to past decade CO₂ reduction of engines WW.
- We are a mid-sized company: \$3.2 billion revenue in 2019, 7,500 employees of which 1,200 are engineers.
- Europe is our most important market, and has been for many years - here, we have operations delivering manufacturing, R&I and software development around the world, five of our thirteen manufacturing sites and two of our five R&D sites are in Europe, including in France, Romania, Slovakia, and the Czech Republic.
- My company's story is the story of the mobility transition. We have been investing in new technologies to meet the future of mobility for years now.
- We are helping to drive powertrains electrification and hydrogen fuel-cell powertrains with world-class technical solutions.
- For hybrid electric vehicles, we offer a pioneering e-turbo system, which allows even more engine efficiency to further lower emissions
- For hydrogen fuel cell vehicles, we produce a key technology for the fuel cell vehicle powertrain: an electric air compressor that works like the "lung" of the fuel cell stack. It boosts fuel cell stacks to higher pressures and flows, significantly improving efficiency and power density and reducing the energy consumption of the powertrain system.
- We also make software for safer and more secure connected and autonomous vehicles

As you all know, the entire automotive industry is experiencing a tough period.

- For automotive suppliers like ourselves, the challenge is meeting customer needs in the short term while at the same time making large investments into the technologies that will decarbonize our sector
- We are investing in the transition and remain focused on the future, despite a challenging market
- COVID-19 has introduced upheaval into an industry which was already undergoing significant transformation and many companies are struggling.
- The Green Deal is vital for Europe's future, but doesn't exist in a vacuum – the automotive industry has to deliver on every front around the world to stay innovative and competitive

Garrett has a vision for meeting the technology challenges of decarbonized mobility

- We strongly support the objectives of the European Green Deal, which also align with our own objective to unlock technology pathways on the road to zero tailpipe emissions.
- We are absolutely clear, the transition to low emissions mobility is necessary and presents enormous opportunities for companies like us
- With the right policy framework, Europe can foster the next generation of low-emission technologies and ensure the global competitiveness of its automotive industry.
- In doing so, we can provide safe, sustainable and affordable mobility to our citizens, while supporting millions of jobs across the continent.

The industry needs the support of policymakers to make this historic transition, especially regarding infrastructure and R&I for new mobility and ways of making it more affordable.

Infrastructure

- It is critical that European consumers can access recharging and refueling infrastructure for zero carbon fuels
- Battery electric vehicles will play a critical role in decarbonization, but a range of fuels will be needed to meet the needs of specific use cases, especially the heavy-duty road transport sector as well as light commercial vehicles
- Hydrogen fuel cell vehicles complement battery electric vehicles, providing users with options that best suit their needs.
- At the same time, there are too few hydrogen refueling stations to support the mainstreaming of the technology
- Ambitious targets for the deployment of low and zero-emission vehicles must be matched with equal ambition in the deployment of supporting infrastructure; only if the two go hand in hand, the transition to clean mobility can become a reality

Research & Innovation

- We also are encouraged by the EU's focus on supporting research and innovation in this area – from production to diverse end uses in road, rail and maritime transport and other uses in power generation and hope that you continue in this effort over the next budget cycle.

Affordability

- All European citizens must be able to access low emission mobility – this cannot be a transition only for those who can afford it
- We help deliver that with technologies that provide emissions reductions to passenger and heavy-duty vehicles, and with the hydrogen fuel cell compressors that will make zero-emission public transport much more available – it is not a given today!
- Electro-mobility has made strides in terms of affordability, supported by government incentives which have stimulated the market. We encourage you to help end users, especially in the commercial vehicle space, to adopt these new technologies, so that emissions gains can be realized as soon as possible.
- We believe that other technologies pathways have this potential, too, and can complement electrification to reach a zero-emission transport system.
- From a policy perspective, we believe the key to supporting an affordable transition is giving the market enough freedom to compete and innovate, while setting a clear trajectory towards 2050
- In practice, this means that, to the best extent possible, the CO₂ Standards, Euro 7 and the DAFI must provide enough room for all technologies to play a role
- It further means that, in order to avoid distortions, future regulations should take into account a life-cycle or well to wheel approach where possible.

So, what comes next and your critical support

- The next milestone is the EUSSMS – EU Smart & Sustainable Mobility Strategy – expected over the coming months
- This will give a clear picture of what is coming next, and what some of the key milestones will be along the way - It is important that this Strategy support all technology pathways to decarbonized mobility
- As a company, we hope this strategy can serve as a guiding light towards 2050, but it must be aligned with our realities to do so.
- DAFI and infrastructure also play a crucial role to benefit from the full potential of emissions reductions, especially for hydrogen fuel cell vehicles
- MEPs will in turn have a crucial role in translating this strategy into policy reality
- We look forward to working with all of you to deliver Europe's Green Deal, and provide low emission mobility to all of Europe's citizens

Henrik Engdahl, VOLVO Group, System Chief Engineer Charging System

Our customers are literally travelling the globe to make society run. It is their profession to make sure roads are being built, goods are delivered and public transport is operated. The COVID pandemic has shown us that we cannot take these operations for granted. Seeing the mitigations needed only in our supply chains and the need for rapid adjustment to a new working environment for my colleagues, we know that urgent action is required in order to respond to such disruptions. These adoptions came in the midst of the biggest transformation of our industry to date, the move from a fossil driven transportation system to one run by renewable energy. It reinforced our conviction that the move towards an even more robust and sustainable transportation system is an absolute necessity.



Within the Volvo Group we firmly believe that electrification is the epicentre of this change. At the heart of this belief is the technological advancements enabling the transformation of the energy sector providing the power needed for both our and our customers operations. With decreasing costs of energy transfer and storage, the possibility of an electrified transportation system is rapidly becoming a reality. The first flavour of this change can be seen in the busses we sell, the launch of our medium duty trucks last year, the promise to enter the heavy duty segments with a battery electric offer and the investments made to enable hydrogen vehicles further down the road.

While changing our supply of primary energy source we are joining two previous uncorrelated realms, the movement of people and goods with the production and distribution of electricity. Both realms feature different histories and characteristics but share at least one fundamental trend: the availability of buffers are decreasing. For the energy sector, the ability to control the supply of energy is heavily reduced by introduction of renewable energy production. For the transportation sector the demands on just-in-time delivery of both goods and people are stronger than ever. The absence of buffers in both systems are perhaps the greatest challenge of all in the already ongoing transformation. When linking two of our societies, most fundamental systems, the margin to failure is smaller than ever before.

To successfully manage we are constantly evaluating the best trade-off between the amount of battery onboard the vehicle and the number of charging stations out there. Although a large battery on-board safeguards the autonomy expected by a heavy duty commercial vehicle, it comes with both economic and ecological costs. These costs can partially be reduced by an

appropriately sized and well-distributed charging network which would allow the vehicle to obtain the energy when and where it is needed.

In addition to positive effects on the vehicle design like less weight and increased payload volume, distributing the charging both geographically and time-wise will reduce the stress of the electrical energy system. Taking the assumption that “parking time is charging time” the present operation patterns of our vehicles can serve as a baseline for the placement of this charging infrastructure. Wherever a vehicle is stopping today, its electrical equivalent will most probably want to stop tomorrow. We have the quantitative information necessary to pinpoint these locations and would gladly bring that into action for example in the revision of the AFID directive.

With the development of charging networks for commercial vehicles in its infancy we believe directing some of the resources of the Green Deal in this direction is a good investment for the future of EU and our economic recovery. In addition to reducing the overall system cost of going electric it would further build on the strengths of European electro technical industry while partially mitigating our reliance on battery deliveries from overseas. Beyond the political and economic complications from relying on foreign suppliers, the pure logistical challenges associated with the transport of lithium ion batteries is another motivation for bringing cell production closer to the home of the heavy duty vehicle operator.

To maximize the usage of the batteries actually entering the system and thus consuming virgin raw materials, we must consider the possibilities of using them beyond the first owner's application. With substantial value remaining when not fit for on-road use its reuse, repair and recycling must be safeguarded. From an automotive OEM perspective the re-use is of utmost importance since the second hand value of the vehicles has a significant input on the commercial viability for our products. Prior to the establishment of this market, a trustworthy valuation of the vehicles in its first life will not be available, providing a great barrier for a larger rollout of electrification. This is yet another market dynamic the Green Deal can help accelerate by providing financial support to the initial fleet of trucks being sold.

Once no longer fit for use in vehicle applications, our batteries will have additional use cases such as demonstrated in the joint project between Volvo and Stena Recycling where batteries used in bus applications are providing an energy buffer to the residents of Gothenburg. Although in its infancy and with access to limited amounts of used batteries such applications will be part of their future life. Less discussed are the remaining parts of the vehicle where both power electronic circuits will be in equally high demand for offboard use. As these will also take its share of material to manufacture, they need to be considered for reuse if we are truly aiming to enter a circular economy.

To summarize, our view is that:

- The uncertainty in residual value of the vehicle may provide a significant delay to the mass adoption of commercial electrical vehicles. Economic support to the initial fleet of vehicles may significantly reduce this delay.
- Beyond the battery there are other, electromobility specific, components within the vehicles which need to find their own pathways to truly make electromobility part of the circular economy.
- There is an intricate balance to strike between available charging infrastructure and onboard energy storage. We have quantitative information available that can aid in finding this balance.

Ondřej KOVAŘÍK MEP, (Renew Europe, Czech Republic)
Economic & Monetary Affairs Committee, Transport Committee



Thank you very much for organising this EFM roundtable and for the possibilities of exchange with the representatives of the industry. I think it is a crucial time.

To follow up on what was said previously I think for us it is very important to have the input from industry because the key will be to set the right policy framework, especially in mobility issues.

There are mobility needs that are raised in the real world which the new technology can take up which as I think is crucial.

Obviously, it is a very challenging time, what we can do to manage the recovery to achieve our policy target of lower emissions and the transport sector cannot be left apart. It has a key role to play. I think at the same time we have to bear in mind a number of issues. I will not repeat what has been already said by previous speakers, but it is really about creating a comprehensive policy framework which will take onboard the technological development in various technological ways.

It should not be only about pure mobility. I fully share Ms Carvalho's interest in finding the combination and the linkages between the hydrogen and battery electric propulsion so that we can see how technology can address specific needs, going from micro-mobility in cities to passenger vehicles to light commercial and heavy-duty vehicles and also going beyond the road transport and seeing other types of mobility solutions available.

There is a good market penetration, there is a competitiveness in Europe so it is sustainable and it is affordable as to how to actually combine all those targets together. This is a very big goal to achieve.

My final remark is because I am also coming from the Economic and Monetary Affairs Committee. I think we have a specific situation right now with quite an ambitious budgetary framework in the EU.

We have a number of various instruments that can be combined or used to achieve such goals. I think we should make good use and efficient use for achieving such goals of the funds available and channelling them into the right policy instruments.

We are in good position to be in a leadership in Europe in this transition but at the same time we should combine all the instruments we have. We should also rely on the technological development from the industry.



Nicolás GONZÁLEZ CASARES MEP, (S&D, Spain) Industry, Research & Energy Committee, Environment Committee

We are now involved in an ecological transition. We are working in changing mobility into a new world which has to be more sustainable than in the past.

We have to deal with changes in mobility, but we do not need to change everything. The 21st century is not the blade runner mobility that was

expected.

We will continue using cars and trucks in the coming years of course, but we have to change the way in which we power our vehicles.

The era of fossil fuels is working to a face out and electromobility is the easiest and fastest way of an alternative now.

Today road transport accounts for one fifth of the EU greenhouse gas emissions and has increased the emissions by over a quarter since 1990.

We have to deal with this important issue.

The success in decreasing emissions in the transport sector is crucial for decarbonisation. The transport is very important if we want to achieve the 55% or 60% target by 2030.

Transport is also a major source of air pollution.

Electromobility also goes hand in hand with the improvement of technology. Everyone is talking about the batteries along with increased interconnections to facilitate the penetration of the electric vehicle.

Lithium based batteries will continue to have the highest “ roof “as EUROBAT confirmed.

At the same time that we see resistance in the Brussels and the EU ecosystem, moving toward the electrification of transport and major European companies are making huge investments in electric cars in China.

It is contradictory and controversial. They are very ambitious fields.

Also, the Americans. It is not only about the company you are thinking of, even Korean companies are investing a lot of money in big R&D factories in USA.

So, we have also possibilities of resource but we cannot stand still and look East and West. We have to work. It is not only about electromobility. The real issue is manufacturing the new decarbonised and digital mobility.

We have to deploy a new standardised infrastructure. We cannot ask manufacturers to do everything by themselves. Mobility companies also have to look for building alliance with other sectors.

We are positive. A good example is that yesterday the European road motor alliance was launched. It is a signal of this type increasing to promote a company manufacturer that make electric vehicles more affordable than today.

We cannot make this transition only for the rich. We have to think of everybody.

In Europe now, we have a big opportunity to go through this transition.

We have the European Green Deal, we are building the necessary policy framework but in addition we have a recovery plan “Next Generation EU.”

It means public money to invest. It would be stupid for members states and the whole EU not to dedicate a significant amount of this programme to supporting an industry that must be align

with the green objectives of the EU. This is a big industry that generates hundreds of thousands of jobs.

To conclude, one critical reflection from myself.

When my parents were kids, when I was a teenager, owning a car was a dream for everyone. We did not care about the consequences for our planet.

But today a new generation of consumers, mostly urban are asking for a more respectful environment. They want a new mobility, connected with the digital world in a multimodal mobility system, because digital electromobility is not only about cars and owning cars.

When we remember, once again, the clock is running towards 2050 climate neutrality, this is also for the transport sector.



Jutta PAULUS MEP, (Greens, Germany) Environment Committee; Substitute on Industry, Research & Energy Committee & Transport Committee

We need a mobility transition, not only a different propulsion method.

Fewer cars must be at the core of the transition.

Mobility as a service should be grasped by automotive companies as their new business model.

Electromobility is indispensable for the remaining cars, also for smaller trucks, trains, inland shipping, ferries...

Need sustainability criteria for electromobility, circular economy, quotas for recycled content of batteries and vehicles.

Infrastructure is crucial for e-mobility roll-out.

Automotive industry is fighting against the market, see decisions on phase-out of ICE in California, quotas for e-mobility in China, EU producers should not let global market slip away.

Susana SOLÍS PÉREZ MEP, (Renew Europe, Spain) Regional Committee, Special Committee on Artificial Intelligence in a Digital Age, substitute on the Environment Committee, & Industry, Research, Shadow Rapporteur on A New Industrial Strategy for Europe, & substitute on Energy Committee

Mobility is the main driver in modern society and an important economic factor in European industrial competitiveness. At the same time, mobility poses one of the greatest environmental challenges. In the EU around 25% of the emissions come from the transport sector, of which, road is responsible for about 70% of them. Urban areas are disproportionately contributing to this due to high population densities and growing urban populations. In addition to the climate impact of CO2 emissions, air pollution is an additional serious concern and threat to public health.



Therefore, there is an urgent need to move towards sustainable transport. The European Green Deal seeks a 90% reduction by 2050 in the emissions from the transport sector in order to achieve climate neutrality, but we will not be able to achieve this if we do not change our transport system.

Electromobility can play a huge role in decarbonizing transport and what we need is an electric mobility revolution. The penetration of electric vehicles is expected to increase rapidly in the coming years and the European Commission estimates that by 2025, about 1 million public recharging and refuelling stations will be needed for the 13 million zero- and low-emission vehicles circulating on European roads.

Sustainable mobility is enabled by innovation, especially in advanced materials, such as batteries, magnets and lightweight materials.

Battery technologies are a strategic imperative for the clean energy transition and will be an essential part of the decarbonisation of the economy. They can become a key driver of the EU's industrial competitiveness and leadership, in particular in the European automotive sector, and can offer a very tangible opportunity to use this profound transformation to create high-value jobs in the EU.

However, the expected increase in sales of electric cars means that the European Union will need more raw materials and metals (e.g. cobalt and lithium). In 2019, Europe's global battery manufacturing share was only 3%, while Asia's share was 85%. If no steps are taken to support the creation of a viable EU battery manufacturing sector, there is a risk that Europe will fall behind its competitors in the global battery market and become even more dependent on imports of battery cells and raw materials used in the supply chain, thereby, compromising its technological sovereignty.

We need to promote and stimulate the battery production in Europe, and create a coherent and supportive regulatory framework for sustainable batteries, in line with the principles of circular economy, the wider EU decarbonisation objectives and the need to reduce dependence from third countries on raw and critical materials and rare earths.

The European Battery Alliance, the Strategic Action Plan on Batteries and the upcoming Batteries Regulation are important initiatives that will help the EU to build more resilient supply chains in key industrial sectors, improve the collection, reuse and recycling rates of batteries, ensure the recovery of valuable materials and the sustainable sourcing of batteries.

In the fight against global warming from the transport sector, in addition to batteries, the role of hydrogen should be highlighted. Hydrogen can be a key source of sustainable energy solutions and a promising fuel for sustainable transportation, especially in heavy- duty vehicle markets (trucks and buses), aviation and maritime transport. The Fuel Cells and Hydrogen Joint Undertaking and the European Clean Hydrogen Alliance aim to position Europe as a leading actor in research, innovation and development of hydrogen technologies, as well as make hydrogen cheaper and more accessible. In order to achieve the goal to 13-14% hydrogen in Europe's energy mix by 2050 and to give a real boost to hydrogen use in the EU, we need an ambitious Hydrogen Strategy and to promote synergies between various EU policy instruments and funds, such as Horizon Europe, InvestEU, Connecting Europe Facility and Regional Funds.

It is clear that creating sustainable transportation solutions is one of the greatest challenges that cities are facing today. At the same time, they are a great opportunity for low-carbon development and European cities ought to be the leaders in this transformation.

In this sense, EU Regional Policy and Structural Funds can help regional and local authorities change the transport system towards a more sustainable and greener model. For example, ERDF funds will be able to finance a wide range of projects, including charging infrastructure for

electric vehicles, small scale urban mobility projects, such as bikes or scooters, and make sure that the transport system allows intermodal connections. Some countries, which are frontrunners in electric vehicle uptake, like the Netherlands, have already national charging infrastructure plans in place. Other EU Member States should follow the example and accelerate the roll-out of future-proof, fast, reliable, interoperable and cybersecure charging infrastructure.

In addition, other funds, such as the Just Transition Fund, will support sectors especially affected by the transition to a climate-neutral economy, including the automotive industry, and will mobilize investments in clean energy and transport infrastructure.

Last but not least, the EU's Recovery Plan will be an important boost of EU money towards a greener, more digitalized and resilient economy. Investments in renewable energy, clean hydrogen and cleaner transport are expected to be accelerated by the requirements put in place.

It is evident that transitioning to a climate neutral future by 2050 requires a profound transformation of our societies, our lives, our values. There is no place for business as usual and Europe must be the frontrunner on climate policy and the global leader in sustainable development, green technologies and innovation. The potential of electrification for developing sustainable mobility solutions is enormous and we should not let this opportunity go untapped.

Claudia GAMON MEP, (Renew Europe, Austria) Rapporteur on 'A Comprehensive European Approach to Energy Storage', Industry, Research & Energy Committee



E-mobility will be the driver for the decarbonisation of the transport sector. With the recently announced climate targets and the European Climate Law, it is clear that we can only become climate neutral by decarbonising the most emitting sectors. The electrification of road transport will be crucial.

The decarbonisation of the transport sector, but also other sectors, will lead to a rising electricity demand. Indeed, the European Commission expects demand to double by 2050. On the other hand, our energy generation from renewable energy sources will increase. The greater the share of renewables, the greater the grid volatility will be. A massive increase of energy storage capacity is therefore essential to secure constant electricity supply. This must be our utmost priority.

In order to secure the stability of the grid and the availability and affordability of energy, we need a broad range of storage technologies that have different storage and response time characteristics. We see tremendous potential in exploiting the use and expansion of existing storage technologies such as pumped hydro and thermal storage, which have proven to be highly efficient in the past decades. Additionally, it is vital to endorse the development of new storage technologies that show improved efficiency or environmental impacts.

For the storage market to flourish, we must remove existing regulatory barriers.

First, double taxation and double charging are two of the biggest obstacles for storage and are still common practice in most member states. This means that storage providers have to pay the grid fee and tax twice: once when charging electricity from the grid and once when discharging back. In order to facilitate market access, we believe it necessary to abolish this double taxation and redesign network charges. This can be achieved by differentiating between ordinary consumption and storage of energy in the revision of the Energy Taxation directive.

Secondly, it should be considered to allow storage projects as potential PCI candidates, as they are relevant for grid planning. In this respect, it is also important to ensure improved enforcement mechanisms as current approval periods for PCI exceed their maximum periods significantly in some member states. Both need to be tackled in the revision of the TEN-E regulation. More generally, it is the Parliament's belief that the PCI criteria must be aligned with the Union's Green Deal objectives, as recent debates have shown.

There might also be the need for an initial boost for some new technologies before they can be competitive and commercially successful. A lack of clarity in state aid guidelines for storage projects might be the reason why in the past there has been poor use of the possibility to support market deployment of novel technologies. Parliament is convinced, that energy storage must be explicitly mentioned in the state aid guidelines in the upcoming review.

In order to tackle these issues, the European Parliament calls on the European Commission to develop a comprehensive strategy on energy storage. Additionally to diminishing the regulatory burden, this strategy must include broad analyses of all possible storage technologies including their life cycle, carbon footprint, capacity and even sourcing and extraction of raw materials. It is crucial to ensure that fostering storage technologies is tied to our high environmental standards and in line with the Green Deal objectives.

Looking at the technologies in question more closely, it becomes clear that battery technologies will play a key role in this transformation towards renewable energy sources by securing a stable and flexible electricity supply. Li-Ion batteries have changed our daily life considerably in the past decades. Smartphones, laptops or electric cars – the majority of them are based on these batteries.

Batteries not only serve short-term uses to balance the grid, but can also provide larger store capacities: from private households up to an industrial scale. The majority of the electric cars are parked over 90% of the time and could be used as a storage unit to smooth fluctuations. In order for this technology to unfold its full potential, a pan-European charging infrastructure must be available which would also increase customers' acceptance of electric vehicles. Moreover, batteries can have a second life after the car is scraped. Separated from their cars, they can be reused as storage units. Politics must enable second uses by creating a framework to guarantee safety and recyclability.

The strong dependency on third countries in the Asia-Pacific region in manufacturing as well as importing scarce raw materials such as lithium and cobalt are still a major challenge. In this respect, we also have to consider working conditions and the actual CO₂ footprint in mining and manufacturing where we should urge to set proper standards. This is why we must continue the work of the European Battery Alliance and the Strategic Action Plan on Batteries aiming to develop a sustainable and competitive battery ecosystem in Europe. Likewise, investment into market-oriented research of new battery technologies under "Horizon Europe" must be in the focus.

The EU also lacks proper recycling standards and guidelines on the safe reuse of lithium-ion batteries. Consequently, this has resulted in considerable hoarding of old consumer goods such as laptops or smartphones in private households and thereby stopped an appropriate reuse of the raw materials. With proper recycling quotas and schemes in place, we would be able to regain valuable raw materials and partly reduce our dependency on imports. This is why the European Parliament demands an improved EU framework on the reuse of batteries such as lithium-ions as well as ambitious recycling targets for this and other new technologies when revising the Battery Directive. Well-functioning recycling schemes in the automotive industry such as the one for lead-based starter batteries can serve as a blueprint for battery recycling.

In conclusion, we see that storage technologies – with batteries at the forefront – are an essential element in achieving the climate goals set out by the Commission. However, this will only be possible once we remove regulatory barriers and make the market accessible for different kinds of technologies. Lastly, we need to think about the whole life cycle of these

technologies to comply with our high environmental standards but also become more independent from third-country imports.

Mikuláš PEKSA MEP, (Greens, Czech Republic) Industry, Research & Energy Committee



First of all, I am very grateful for having this wonderful opportunity to exchange with the people from industry. I strongly believe that this is important in order to be able to deliver the change that we are all here willing to do.

As it was mentioned earlier, we are facing the biggest change of our electric transport. We need to communicate, we need to deliver it fast.

As my colleague from S&D mentioned previously, I think that one of the greatest fears among our citizens is the fear of losing their jobs. We need to be serious because that is one of the key issues that can undermine the trust of our citizens and the whole project of the green deal.

Hence, I believe that we need to deliver on working electromobility as fast as possible.

Generally, what is needed, and it was mentioned here previously, is good standardisation.

We need to ensure there is clear operability of our systems in order to scale up and provide the same service for the low cost.

We need very much to focus on good availability of the technical standards as well as the using of open design as much as possible when designing the technical equipment.

Another important issue, when I am speaking with citizens, their second biggest fear regarding electromobility, apart from losing their jobs, is the fear of toxic material.

At that point we need to provide a clear solution.

We previously mentioned the concept of recirculation by design. That is something, I strongly believe should be promoted.

At that point this will require a lot of information for those who are responsible for the recycling.

As for the data protection of the battery, its final recycling can be quite often around ten years.

So, we really need a clear overview of what are the designs being used and what is the battery circulation.

We come to the point where it will become really important to collect the data about batteries we are using.

The whole sector is moving towards much more data economy that we were used to. Like other sectors are moving to data economy, and actually what we are talking now is more or less about data economy but it will come also to the battery industry.

We, and it is our task as legislators, have to ensure that this data will be on one hand available for technical development, on the other hand secure enough in order to preserve the privacy of our citizens which is our important task.



Marianne VIND MEP, (S&D, Denmark) Employment Committee & substitute Transport Committee

Thank you to all the speakers and for inviting me to give an intervention. The discussion has been very inspiring.

The importance of placing our bets on an electrified transport sector have already been made exceptionally clear. It is a question of saving our planet, our environment, the health of our citizens as well as a competitive automotive sector in Europe.

There are hundreds of things we could discuss under this topic from battery supply lines to electrified rail freight. Today, I will make three short remarks as a member of the Transport and Employment Committees on the work we have ahead of us in the Parliament, focusing on electric vehicles.

- First and foremost, we have to work hard to ensure the highest possible targets for 2030 in the European Climate Law.
- We regulators have to work with the market in order to speed up the switch to electric means of transportation.
- We are on the right track. Even under the most pessimistic projections, the size of the EV fleet will multiply by 50 in 2040 compared with today.
- But!! More ambitious scenarios in terms of climate targets lead to higher deployment of EVs, and with this also the increasing demand for batteries. That drives market developments.
- We must signal that the days of fossil transport is numbered. This will require a 2030 target way above 55%, preferably 65%.
- Secondly, for Electromobility to truly take off, we need the proper infrastructure to be in place.
- We will first of all have to deliver much more ambitiously on the Alternative Fuels Infrastructure directive. We need a minimum of 1.3 million charging stations in 2025 and 2.9 million by 2030.
- We need to make sure that especially the TEN-T corridors are fit for purpose in servicing the new fleet with at least one charging point every 60 km on the TEN-T Core Network.
- And we must have a harmonised payment system so EV charging is as easy as filling your car with gasoline.
- Thirdly, we have to recognise the challenges that this will encompass for our automotive sector on the continent as well as all those who are employed in it.
- The automotive sector provides direct and indirect jobs to 13.8 million Europeans, representing 6.1% of total EU employment.
- As we transform to electromobility - and this is a must - we will see a radical change in employment. The manufacturing process for a conventionally fuelled car differs significantly from the one of an electric vehicle that requires many fewer parts. This will cost jobs. The question is how many and what to do about it.

- If Europe's industry does not take the lead on this development or at least catch up, we risk losing millions of jobs. The jobs that will be created may also be suited for other skills than what is present in the industry today.
- To deliver on the potential of electromobility, we therefore have a massive responsibility in up- and reskilling European workers to suit the new industry.
- As a last and extra point, we cannot continue to hold Member States back who want to increase their green ambitions.
- The EU must allow Member States to impose a complete ban on fossil cars by 2030 and should as a union impose a continent-wide ban by 2035 in line with California ambitions.

Thank you for the time and for your many insightful interventions. I look forward to working with you all.

WAY FORWARD

CLEPA - European Association of Automotive Suppliers

David Storer, CLEPA Director Research, Innovation and New Mobility

- As we have heard today, achieving European leadership on battery development and production is our top priority. In this respect, many important actions are being taken in Europe to support the role that battery technology should have in terms of sustaining economic growth, creating jobs and contributing directly to achieving the Green Deal targets.
- Indeed key initiatives such as the Batteries Partnership will be essential for supporting the required research and innovation, being a fundamental enabler for Europe to become a leading provider of sustainable batteries, which rely on readily available and ethically produced raw materials, manufactured with carbon-neutral energy, and designed for efficient reuse and recycling, in addition to increasing their energy density to enable improved performance and cost-competitiveness for each specific application.
- Europe's global leadership must be built on a solid supply of transparently and sustainably extracted and processed primary raw materials, as well as on comprehensive and sustainable recycling of the raw materials from the batteries installed and used in Europe. Also important, as we have heard today, is the application of second-life batteries as decentralized energy storage systems that can support the overall decarbonisation targets.
- Clearly, applications for advanced batteries are not limited to transport, but are essential for the decarbonisation of other sectors - hence reinforcing the need for a shared vision and for a research and innovation strategy on future of batteries and for the regulatory requirements in order to realise the full potential by guaranteeing the future competitiveness of the European battery industry across all markets.
- Research on batteries must also contribute towards the creation of European excellence by stimulating a new generation of young research talent as well as training a new, highly skilled workforce. Clearly it is clearly necessary to invest now in the next generations of experts and specialists, capable of contributing to all aspects of future battery development and production.



- Our common goal remains the development of sustainable and affordable battery solutions for clean mobility according to a joint research and innovation agenda agreed between Industrial stakeholders, research providers and policy/regulatory authorities working across different sectors in close collaboration.

Sigrid de Vries, CLEPA Secretary General

- Good evening, thank you to all who contributed to this evening's exchange, which is a very timely one.
- European Commission President von der Leyen is reported to propose next week to lift the overall carbon-reduction target for 2030 to 55% instead of the currently 40%.
- The European Parliament is aiming for still higher numbers, as indicated by parliamentary committee votes this week, and the Council of Member States is expected to take a decision later this month.
- The outcomes will inevitably increase the pressure on all key sectors to deliver.
- The automotive industry is fully behind the goal of carbon-neutrality by 2050.
- In sync with economic recovery efforts, industry is marching full speed ahead, and ready to work alongside policy makers and other stakeholders to bring solutions to reality.
- The key question remains not if, but how to achieve the objectives, securing innovation, manufacturing and employment in Europe as well as reaching the climate goals.
- The Commission is setting important directions with increased attention for a full battery supply chain in Europe, a hydrogen strategy and partnerships for R&D funding.
- But the scale of transformation in the automotive sector, affecting millions of livelihoods, needs a far more integrated and technology-open approach.
- The impact of the COVID crisis is upping the game: since March, over 100,000 jobs have been announced to be cut, half of which with automotive suppliers.
- This is the top of the iceberg, because announcements of smaller companies often do not make national news. Still, the majority of jobs in industry are provided by SMEs.
- We are worried that the transformation will turn into a disruption of the sector's capacity to innovate, invest and maintain employment.
- The risk of a further substantial loss of employment is real.
- We strive for a reliable, technology-neutral and ambitious regulatory framework to achieve its objectives.
- In this light, European Commission Vice President Timmermans' intervention in the Environment Committee this week, where he said to be against a ban on internal combustion engine vehicles, is positive.
- Let us now work to change the regulatory approach to make sure carbon-free combustion counts towards reaching the goals.
- Companies need the adequate conditions to manage the transformation that is unfolding.
- The automotive supply industry in Europe is a major force behind the transformation and keen on delivering the technology solutions.
- But we stress the need for an honest debate about the effects of policy decisions.



- We need to guarantee that the future will provide accessible and affordable mobility for all. The economic and health challenges of the past months have reemphasised the role that transport has for society at large.
- Europe should make full use of its strengths, reinforcing its competitiveness, supporting its advanced technology competence and autonomy while securing its high value industrial base and employment.
- An open dialogue on how to best achieve the climate ambition, supported by a technology neutral and effective regulatory framework that rewards efficiency is necessary.

Alfons Westgeest EUROBAT, General Manager

You are aware of the profile of EUROBAT from previous speakers during this EFM Forum. To sum up therefore:



- We already have an important existing production database in EU today
- So we do not start ‘from scratch”, but emphasise the need for continuous investment
- If we are to meet forecasted demand (and CO² reduction targets from EU), the full mix of technologies needs to be in scope, otherwise it will be impossible
- As pointed out in our Battery Innovation Roadmap, all chemistries have enough innovation potential and consequently need to be further nurtured.
- There is an absolute need for a cohesive regulatory framework with synergy between various ‘pieces of the jigsaw’: ELV, reach, Batteries regulation, Waste shipment,...
- Need to support EU production of all chemistries, each serving their specific requirements and applications
- MEPs are a critical force in the shaping of the this very important EU Regulation – batteries are some much central to our lives and economy
- Industry likes to take its part of responsibility moving forward
- We appreciated this opportunity and MEP support and would like to stay in regular contact

CONCLUDING REMARKS



Antony Fell, EUROPEAN FORUM FOR MANUFACTURING, Secretary General

My thanks to CLEPA, the European Association of Automotive Suppliers, to EUROBAT, the Association of European Automotive and Industrial Battery Manufacturers and to the Volvo Group for working so closely with the EFM to produce this EFM Forum on the Green Deal & Electromobility.

We have had a very productive evening. I would also like to thank Maria da Graça Carvalho MEP for chairing this event so well and the MEPs, European Commission and industry representatives for their excellent contributions. I formally conclude this virtual meeting.