



THE GREEN DEAL AND THE AUTOMOTIVE INDUSTRY IN THE EU

Transforming the Automotive Industry - Impact on EU Regions

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Introduction

Climate Change and today's reality – setting the scene

Global temperature has been rising since the late 19th century as a result of human-made emissions into the atmosphere. Some facts regarding how the climate change affects the regions in the EU in particular (*Infographic, 2018*):

- In the Mediterranean Region: more heat extremes, less rain and river flows, droughts and more lives lost due to the increasingly intense and increasingly strong heat waves
- In the Arctic Region: temperature increases more than global average, less ice, higher water levels, risk to local people and animal life
- In the Boreal Region: more heavy rain, less snow and ice, more rain and river flows, higher crop yields
- In Mountain Areas: temperature increases more than the European average, smaller glaciers, higher risk of forest pests;

Citizens and especially the young generations showed either by voting or by marching that climate change is among their top priorities and the European Commission replied by presenting the Green Deal in December 2019 – before the pandemic. As the COVID-crisis demonstrated, natural hazards are real, and they can hit us anytime, anywhere. Cities and regions have been at the forefront of the health emergency, but it is not the end of it. Today, local businesses and jobs are disappearing or under severe threats. In order to address both challenges, the European Commission sent a strong signal that the recovery needs to be rooted on a sustainable path via its flagship initiative Green Deal.

This paper aims to provide an overview of the necessary transition path, its challenges and possibilities for a sector that attracted a lot of attention throughout the EU in the past month – the automotive sector.

The COVID-19 seriously hit the automotive industry in the whole value chain. Key four associations representing the EU automotive sector (ACEA, CECRA, CLEPA and ETRMA) presented a 25-point action plan to relaunch the industry on 5th of May, including proposals for fiscal and non-fiscal measures to help the industry survive (*Paper, n.d.*).

About 75% of the businesses expect that the recovery will take 12 months and 30% expects recovery in 2-3 years. 79% of workers are believed to be affected.

A European Green Deal

The European Green Deal is a response to the challenges the world and Europe are facing. It is a growth strategy proposed by the von der Leyen Commission (hereinafter “EC”) that aims to make Europe the first climate neutral continent by 2050. The main idea is to transform the economy into a clean and circular system, while cutting pollution and restoring biodiversity (*A European Green Deal*, n.d.). Reaching the climate neutrality by 2050 requires investments, a well-planned strategy, scientific research and much more. This is why working together, including individual citizens, the private sector, European, national, local and regional authorities, as well as research and civil society representatives carries a huge importance.

As a way to introduce the Green Deal into European legislation and to set a concrete path for achieving the set goals, the European Commission proposed the European Climate Law. According to the EC, reaching the target of 2050 will require:

- investments in eco-friendly technologies
- clean public and private transport
- support for research and innovation
- decarbonisation of the energy sector
- more efficient buildings
- environmental recovery

To achieve this far-reaching transformation, besides the legal and technical assistance, the Green Deal premises have also been introduced into the new Multiannual Financial Framework and European funds. The main idea is to support most affected regions and businesses. One of the support tools is called the ‘**Just Transition Mechanism**’ which is expected to mobilise at least €150 billion of both public and private investment during the period between 2021 and 2027. The fund includes a **just transition fund**, loans from the **European Investment Bank** and a **just transition scheme** under **InvestEU** (*Just Transition Fund - Think Tank*, 2020). Even though the Just Transition Mechanism targets the energy sector, expanding its scope even further to include parts of the automotive

industry could help the sector reach their target and the requirements of the Green Deal faster.

Automotive Industry in the EU

The automotive industry carries a huge importance for the European Union. According to the European Commission, the sector employs directly and indirectly **13.8 million people** including direct and indirect manufacturing, maintenance, transport and construction, which is equivalent to **6.8%** of total EU employment (European Commission, 2016). The EU is home to the world's biggest automotive companies and manufacturers. **2.6 million** people work in manufacturing of motor vehicles in the EU, which is **8.5%** of total EU employment in manufacturing. The EU stands for 20% of the global motor vehicle production and 21% of global passenger cars production (*Key Figures | ACEA - European Automobile Manufacturers' Association*, n.d.). All in all, the automotive industry is worth over **7%** of European Union's GDP. The industry has an impact on other sectors such as chemicals, textiles, steel, repair and mobility.

Regions are key players for the automotive industry. For example, Central Bohemia in the Czech Republic is a good example of a regional economic and social success. The companies in the region provide not only an economic benefit, but by supporting cultural and social activities in the region, a social one as well. Besides, these industrial regions often host also research and development (hereinafter R&D) centres and science parks contributing to the regions' economy. For instance, the EU automotive industry invests €57.4 billion in R&D annually, which is equivalent to 28% of total EU budget spending. For more information on the automotive sector in the different European regions, see Annex 1.

Challenge ONE: Putting jobs at risk

One of the challenges for the envisaged transition towards climate neutrality are the jobs linked directly and indirectly to the automotive industry. Electric cars are mechanically simpler than traditional cars which means that their production requires less workforce. As a result, the automotive industry might experience a high percentage of job loss. It is estimated that, compared to an internal combustion engine, 30% fewer working hours are needed to manufacture an electric car. This would imply that if the transition is made without any accompanying measures aimed at creation and capturing of additional added value, around 30% of employment, which is more than 4 million jobs in the automotive industry, could be lost. Besides, many car companies have already announced job cuts before or during the COVID-19 pandemic, including Volvo cutting more than 4000 posts globally, Renault around 14,6000, and Nissan, that decided to shut down the factory in Barcelona, which affects 3,000 direct and 25,000 indirect jobs.

The most dramatic loss of employment, however, will be expected in the auxiliary industry. While the assembly plants of the car brands themselves are definitely at risk, it is the suppliers up the supply chain that are expected to bear the highest cost of the transition, as the industry outsources up to 75% of the value of the components.

Another risk that EU might face in the absence of any trade-adjusting measures accompanying the Green Deal is that the **green transition is avoided by businesses via offshoring**, as labour and logistics costs are lower in non-EU countries, in particular in Asia.

Re-skilling employees and adoption to the new industry

As the production process of electric cars is different than for traditional cars, different skills and knowledge will be required from the workforce. Thus, employees might be replaced by others with a more adapted skill set. The replacement might cause another wave of job loss, unless the employees are re-skilled. However, the automotive industry has also experienced a fast-paced change in the last decades and in many Member States, these processes are negotiated with trade unions to be made as inclusive as possible.

Change is always also an opportunity, and businesses started preparing for the transition. The automotive sector already started investing in robotics, automation and artificial

intelligence and this contributed to a change of the workforce mentality away from the traditional mechanical, routine approach to a more quality control type of work (*The Future Success of the Automotive Industry Is in Its Workforce* | Randstad, n.d.). All these innovative changes led already to a more digital economy requiring more skilled workers. One such prominent trend in the automotive sector is AI which is only one area of reskilling the employees to prepare them in future's technology. Some skills are also needed to use robotics, data-driven systems and Robotic Process Automation (RPA).

All of this means that the employees need to be re-skilled and up-skilled to keep up with the fast-pace changes in the industry. Accelerating the workforce adaptation in the automotive industry keeps the European automotive industry competitive and the regions prosperous. If done correctly, regions would not only survive the transformation, but the industry can profit from it, accelerating the production and integrating itself better in the digitalised economy of today's and future world.

Furthermore, the sector will create new job opportunities since some trends of today will be more popular such as autonomous driving, personalisation of design, software developments. On the one hand, re-skilling employees can keep the current job structure of the employees with added value of new skills. On the other hand, new job opportunities will be created as an effect of futurization and digitalisation of the industry.

Challenge TWO: Reduced Oil Prices, industry heavily affected by the economic downturn and weakened purchasing power are not an encouraging backdrop conducive to change

It is also important to know that this highly cyclical industry entered a pronounced downward trend in sales already in 2019 and it has also been bracing for possible effects of Brexit that could severely disrupt supply chains.

In the past couple of months, oil prices dropped dramatically as a result of both the price war between the biggest oil producers and the COVID19 confinement measures, which shut down people's lives and businesses, reducing demand for fuel all over the world. Since the demand is at a low level, the oil price has collapsed to a record low in decades, reaching negative values at the peak of the crisis when global storage capacities were full. A post-COVID-19 recovery of prices is expected, but despite current temporary jumps, it

could take some time before prices return to the stable levels from before the pandemic. Governments increased the fuel tax to partially offset the drop in petrol and diesel prices, but they may still represent less of a financial deterrent from old polluting technologies and less of an incentive to buy a new clean vehicle in the mid-term.

Countries such as France and Germany have announced support packages to the automotive industry, which puts Green Deal requirements at their core. Germany, for example, announced €130 billion stimulus package for the economy. The package includes €6,000 purchase incentive for electric cars under €40,000 and some tax reduction. In France, the government announced €5 billion bailout for the Renault group in order to rescue the French auto industry. In Spain, however, the government announced a €4.2 billion bailout for the industry aimed at supporting the recovery of the automotive industry as it is, not taking into account the industry's transition.

Challenge THREE: R&D investment and competitive advantage of the European carmakers

A transformation of the whole automotive industry requires investment into research to shift from developing increasingly complicated and marginally more efficient diesel and petrol engines towards hybrid and liquified petroleum gas (LPG) powered vehicles as a means of transition and towards electric and hydrogen fuel cell vehicles for mass production and use in the long-run.

European car makers have traditionally been the technology leaders in making the most advanced, efficient and best performing petrol and diesel engines and transmissions (which together with the driveshafts and differential make the complex electronically assisted powertrain of the internal combustion car). This was achieved by locking significant investment into development of smaller engine blocks and technologies that optimize the fuel burning, power transmission, reduce emissions and thus increase efficiency. Because these technologies have a relatively long lifespan, recovery of these investments is still ongoing, and a typical engine block can be used in two or even three consecutive generations of car models, while the peripheral technology is replaced with newer updates.

In short, European car makers have a strong incentive to continue making and selling petrol and diesel cars, because this is the segment where they are the best and they

invested heavily into mastering this technology. As soon as we move to hybrid or electric vehicles, even the premium German brands could quickly lose their competitive edge to companies such as Tesla, Toyota or even Hyundai and Kia.

Besides the technological excellence, European manufacturers, compared to their Asian counterparts, do not have direct access to raw materials required for the production of 'new generation' vehicles, in particular electric vehicle batteries. When purchasing an electric vehicle, a third of the total price is derived from the battery, which is made of raw materials such as Lithium. However, China accounts for more than 60% of the car batteries manufactured in the world; another 21% depends on other Asian countries, such as South Korea; and 10% from the United States.

The European Commission understood the strategic importance of battery production for clean energy transition and the competitiveness of its automotive sector and in order to support it, created already three years ago the so-called European Battery Alliance which will soon be followed by the European Hydrogen Alliance. The ultimate aim is to bring the European Commission, interested EU countries, the European Investment Bank, key industrial stakeholders and innovation actors together in order to create a competitive manufacturing value chain in Europe, by identifying technology needs, investment opportunities and regulatory barriers and enablers.

These Alliances can build also on already existing best practices, such as Northvolt, a Swedish company based in Stockholm aiming to build Europe's first 'Gigafactory' for lithium-ion batteries in order to use them for the manufacturing of electric vehicles (*Northvolt Is Building a Future for Greener Batteries*, n.d.). The company has built a plant in Skellefteå which is expected to start manufacturing in 2021. It is expected to make enough batteries for the European market every year by 2024, which would be enough to power more than half a million of electric cars. Also, the company wants to make these lithium-ion batteries the greenest batteries in the World. Northvolt has raised about €900 million that is more than any other tech company in Europe. Behind it are some large corporate investors such as BMW, Volkswagen, Siemens and ABB. Also, the European Investment Bank gave a loan worth to €350 million, which is the largest loan given to energy storage industry so far.

Challenge FOUR: Range anxiety and charging and re-fuelling infrastructure

A dense network of charging stations and re-fuelling stations will be an additional requirement for a successful and timely transition of the automotive industry. Currently, there are around 190,000 available publicly accessible charging points, hydrogen and LNG and CNG gas stations for transport across the European Union. On average, there are 250 electric vehicles and 38 recharging public points per 100.000 inhabitants in the EU. In this respect, it is the Eastern and Southern European member states that need more investment than the Western and Northern member states.

In order to increase the appeal of vehicles running with alternative fuels, by providing more freedom to move and more stability, more confidence to consumers and therewith to fully include the transport sector into the climate neutrality path, Europe needs a sufficient number of alternative fuels charging points for vehicles by 2030. According to the European Automobile Manufacturers Association, this would mean at least 2.8 million **charging stations by 2030**. In terms of financing, according to European Federation for Transport and Environment, this translates to 20 €billion in the next 11 years or 1.8 €billion per year on an average (Simon, 2020).

The European Commission is supporting these efforts, on one side by introducing minimum requirements for electro-mobility for car parks over a certain size and other minimum infrastructure for smaller buildings¹ and by issuing targeted EU legislation, such as the Alternative Fuels Infrastructure Directive (2014). This Directive sets requirements for the Member States to introduce clearly specified numbers of charging stations for electricity for vehicles, CNG and LNG for both vehicles and maritime vessels. The infrastructure needs to be put in place by 2025.

There are already many existing good practices to share on national and regional level, just to name a few:

- ▶ In 2019, the automotive industry and the federal Government in Germany agreed on reaching 1 million charging stations across the country by 2030;
- ▶ Currently there are 2546 charging stations in Norway including Schuko (EU plug), TYPE 2, Tesla Supercharger (*Charging Stations in Norway*, n.d.) while its neighbour Sweden has 1768 stations.

¹ Energy Performance of Buildings Directive, 2018/844/EU

In **Sweden**, 12 % of Sweden's export income come from the automobile industry as 85 % passenger cars and 95 % of heavy trucks are sold outside of Sweden. Gothenburg, the second biggest city in Sweden is known as the Swedish automotive industry hub. The headquarters of Volvo Cars, for example, is in this city and employs more than 40,000 people. There are more than 110,000 people who work in the automotive industry in Sweden and the share of direct automotive employment is 13.3%².

In **Belgium**, the share of direct employment in total manufacturing is 5.8% and is mainly concentrates in Flanders³.

Croatia produces mostly automotive parts and software, primarily for the European Single market. The industry employs roughly 10,000 people in around 130 companies in the country. Croatia is a country without a car manufacturing history. However, several increasingly known car manufacturers are appearing, such as DOK-ING and Rimac Automobili. and today roughly 4,7 per cent of Croatian exports come from the automotive industry⁴.

In **Czech Republic**, the automotive industry is the largest industry, worth more than 9% of the GDP. There are approximately 800 companies with more than 150,000 employees. The industry makes 24% of Czech exports and also 33% of all investments in R&D in Czechia are in well-known automotive R&D centres. Skoda Auto and TPCA Czech are well known automobile factories and of national importance. In the Bohemia Region, the GDP of 2018 was 24.1 billion EUR in 2018 which makes up 11.6% of Czechia's economic output⁵.

In **Bulgaria**, automotive companies are located in all regions with a focus in Southern Bulgaria. The number of people who work in the sector was around 37,000 in 2017 (Bulgaria, 2017). The revenue from the automotive industry represented over 4% of

² (Share of Direct Automotive Employment in the EU, by Country | ACEA - European Automobile Manufacturers' Association, n.d.)

³ (Share of Direct Automotive Employment in the EU, by Country | ACEA - European Automobile Manufacturers' Association, n.d.)

⁴ (Croatia, 2018)

⁵ (Commission, 2019)

Bulgaria's total GDP. In the last few years, the automotive industry has been growing constantly ⁶.

The automotive industry employs almost 7,000 people in **Finland**. There are two relatively big companies, Valvet Automotive in Uusikapupuni produces passenger cars and Sisu-Auto Oy in Karjaa heavy trucks. In 2019, the production of passenger cars was 114,785. Since 2014, electric and plug in hybrid vehicles are on the rise. In 2010, the electric car production was 23 while hybrid 0 which rose to 4661 to 24704 in 2019 ⁷.

In **Germany**, the **North Rhine-Westphalia** region is one of the key centres of the automotive industry. From international companies to medium-sized suppliers, the region hosts one third of Germany's automotive component suppliers. Besides, the region has a 63% of export ratio which is the second highest share in North Rhine-Westphalia. Over 200,000 people in around 800 companies are employed in the region. The area around **Cologne** is important for the automotive industry. It hosts 23 companies and 27,186 employees with a 70% export rate. According to the figures, every fourth new registered car in Germany comes from the Cologne area ⁸. In **Bavaria**, 236,904 employees are employed in around 1,100 companies in the automotive industry. Around 47% of R&D investments in the region are dedicated to the automotive sector and 25.8% of all cars produced in Germany are manufactured there⁹.

In **France**, 8% of the population work in the automotive industry, directly or indirectly. Around 223,000 people work directly in the automotive sector in France. The major automotive manufacturers are Renault at Flins-sur-Seine, and Groupe PSA at Poissy. Although many of the manufacturing activities are outsourced to other countries, they have research centres and plants in the region¹⁰.

Luxembourg is part of an international automotive network made up of over 300 companies. Altogether, they manage to create more than 220,000 highly qualified jobs. This cross-border automotive network is composed of BENELUX, Germany and France in which Luxembourg is one of the main drivers ¹¹.

⁶ (Bulgaria, 2017).

⁷ (Car Production in Finland - Autoalan Tiedotuskeskus, n.d.)

⁸ (Automotive | NRW.INVEST, n.d.)

⁹ (Automotive Industry I Bavaria, n.d.)

¹⁰ (The French Automotive Industry, 2017)

¹¹ (*Luxembourg, Major Hub of Business, Research and Innovation | Trade & Invest*, n.d.)

In the **Netherlands**, although this industry has suffered difficulties in recent years due to its global redefinition, the current focus on innovation and development of top technological, engineering and IT solutions has led the Netherlands to employ 45,000 people, half of which are located in the Eindhoven area, where the Automotive House is located. In a nutshell, North Barbant has become the manufacturing hub for the country. In fact, 56% of the patents in the Netherlands have been granted to this region. A region which provides with innovation, R&D and new materials ¹².

The automotive market in **Romania** has been growing, in average, by 18% every year since 2009. The sector is becoming one of the most profitable in the national economy. Nevertheless, due to the recent growth of the sector in the country, more than 600 OEMs for automotive supplies have opened plants in Romania. Furthermore, companies such as Renault, Ford, Suzuki, Opel and Porsche – with its R&D centre- have chosen Romania as the location to develop their projects ¹³.

Slovakia is the country that manufactures the highest number of vehicles per capita. Due to its low working and living costs, together with its logistical location, it has become the country chosen by many international car producers, such as Volkswagen Slovakia in Bratislava, the largest in the country. The country's car production represents 4% of the entire industry ¹⁴.

Slovenia is a country with a long experience in the automotive sector. This industry has been part of its economy since the end of the 19th century, and it currently accounts for one tenth of the countries' GDP. Hence, with a presence of 280 companies related to the automotive sector employing 17,451 people and providing a revenue of €4.4 billion annually according to 2018 figures, the industry has become part of Slovenia DNA ¹⁵.

In Spain, The Basque Country has become, throughout the years, a region with a greatly developed automotive sector, both in Spain and internationally. There are over 300 companies in the territory which currently provide a third of the total national production of the sector. Together with energy and aeronautics, the automotive industry has become one of the most important ones in the Basque economy. In fact, this field provides with 20% of the region's GDP, as well as jobs to 35,000 people. The automotive

¹² (dan, n.d.)

¹³ (Automotive Industry in Romania, n.d.)

¹⁴ (BRATISLAVA – The New Motor City! – Bratislava Motor City, n.d.)

¹⁵ (Automotive Manufacturing and R&D Sector in Slovenia and Romania, n.d.)

sector of **Cantabria** is made of 60 companies, half of which have a significant weight as suppliers of the industry. An industry that provides direct employment to 7,900 people and indirect employment to 10,800. Moreover, with the aim to boost the sector competitiveness, the government has also created several industrial clusters and research centres linked to advanced manufacturing such as GIRA, the cluster of the automation, or the CTC, the technological components centre. **Castilla y León** is one of the most important European regions in the automotive sector. There are four car manufacturing plants: RENAULT, FIAT-IVECO GROUP and NISSAN. The automotive sector creates 35,000 jobs within the autonomous community through the 180 companies related to the industry. The sector generates 25% of the industrial GDP of the region and exports 86% of its production. In fact, 56% of the community's exportations are created by the same industry ¹⁶.

Annex II - Governments' supports to companies in Consideration of Green Deal

France - decided to give a loan worth €5 billion to Renault Group in order to fight the negative impacts of the COVID-19 on the company (*State Aid*, n.d.). France also notified the European Commission about this decision under the Temporary Framework (state aid) and the European Commission has approved it. As most of the companies Renault needed a state back up which is vital to back to business as usual. **France** also announced that the state will offer incentives for buyers of new, green cars to boost sales (*Macron Says Support for France's Auto Industry Will Be "Massively Amplified,"* 2020). Also, the government promised to help small companies and automotive parts suppliers. Lastly, Finance Minister Bruno Le Maire called Renault Group to join European-wide initiative to build electric car batteries to prevent dependency on Asian imports.

Germany, announced the *world's greenest* recovery budget plan, €130 billion, which includes €41 billion to public transport, electric vehicles and renewable energy (*Germany's Recovery Fund Gets Green Hue With Its Focus on Climate - Bloomberg*, n.d.). This is a historical moment since no financial support is foreseen for combustion-engines vehicles. The initiative is half of the US's recovery plan after the 2008 financial crisis when

¹⁶ (*La Automoción, Sector Estratégico En La Economía Vasca*, n.d.)

comparing the Germany's economy size. Besides, the initiative has got many good responses from different parts of the society. The support for electric vehicles is about 9,000 euros per car which is the most generous support across Europe.

Sweden – **Volvo** - A few years ago, Volvo decided to stop developing diesel engines and *go electric*. They set a 2025 target, according to which, every second sold car should be an electric vehicle. Besides, they are decreasing tail pipe by 50% and CO2 logistics and supplies by 40% comparing between 2018 and 2025 and set the goal of zero emission for the company internally, to 2040, ten years before the Green Deal target. They acknowledge that there are challenges such as production costs, low demand and lack of raw materials and charging stations and that is where the Group wants to see the EU's and national governments' support. According to Volvo representatives, there is still a huge demand for electric cars despite the high costs and even COVID-19.

Bibliography

- ACEA. (2020). *Paving the Way to Carbon-Neutral Transport*. Brussels: European Automobile Manufacturers Association.
- Commission, E. (2018). *EC. From EC:*
<https://ec.europa.eu/transport/sites/transport/files/3rd-mobility-pack/swd20180245.pdf>
- A European Green Deal*. (n.d.). [Text]. European Commission - European Commission. Retrieved May 18, 2020, from https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en
- Automotive | NRW.INVEST*. (n.d.). Retrieved May 7, 2020, from <https://www.nrwinvest.com/en/industries-in-nrw/automotive/>
- Automotive industry | Bavaria*. (n.d.). Invest in Bavaria. Retrieved May 7, 2020, from <https://www.invest-in-bavaria.com/en/range-of-sectors/automotive-industry.html>
- Automotive industry in Romania*. (n.d.). Retrieved June 22, 2020, from <https://www.see-industry.com/en/automotive-industry-in-romania/2/875/>
- Automotive manufacturing and R&D sector in Slovenia and Romania*. (n.d.). Retrieved June 22, 2020, from <https://www.see-industry.com/en/automotive-manufacturing-and-r-d-sector-in-slovenia-and-romania/2/1299/>
- BRATISLAVA – The New Motor City! – Bratislava Motor City*. (n.d.). Retrieved June 22, 2020, from <https://www.bratislava-motor-city.com/uncategorized/bratislava-the-new-motor-city/>
- Car production in Finland—Autoalan Tiedotuskeskus*. (n.d.). Retrieved May 6, 2020, from http://www.aut.fi/en/statistics/automobile_sector_in_finland/car_production_in_finland

Charging stations in Norway. (n.d.). Retrieved May 28, 2020, from

<https://www.electromaps.com/en/charging-stations/norway>

dan. (n.d.). *Innovation on the open road.* Retrieved June 22, 2020, from

<http://www.aeidl.eu/en/projects/territorial-development/urban-development/urban-projects/innovation-on-the-open-road.html>

European Commission. (2016, July 5). *Automotive industry* [Text]. Internal Market,

Industry, Entrepreneurship and SMEs - European Commission.

https://ec.europa.eu/growth/sectors/automotive_en

Germany's Recovery Fund Gets Green Hue With Its Focus on Climate—Bloomberg. (n.d.).

Retrieved June 5, 2020, from [https://www.bloomberg.com/news/articles/2020-](https://www.bloomberg.com/news/articles/2020-06-05/germany-s-recovery-fund-gets-green-hue-with-its-focus-on-climate?srnd=premium-europe)

[06-05/germany-s-recovery-fund-gets-green-hue-with-its-focus-on-](https://www.bloomberg.com/news/articles/2020-06-05/germany-s-recovery-fund-gets-green-hue-with-its-focus-on-climate?srnd=premium-europe)

[climate?srnd=premium-europe](https://www.bloomberg.com/news/articles/2020-06-05/germany-s-recovery-fund-gets-green-hue-with-its-focus-on-climate?srnd=premium-europe)

Infographic: How climate change is affecting Europe | News | European Parliament.

(2018, September 20).

[https://www.europarl.europa.eu/news/en/headlines/society/20180905STO11](https://www.europarl.europa.eu/news/en/headlines/society/20180905STO11945/infographic-how-climate-change-is-affecting-europe)

[945/infographic-how-climate-change-is-affecting-europe](https://www.europarl.europa.eu/news/en/headlines/society/20180905STO11945/infographic-how-climate-change-is-affecting-europe)

Just Transition Fund—Think Tank. (2020, February 17).

[https://www.europarl.europa.eu/thinktank/en/document.html?reference=EPR](https://www.europarl.europa.eu/thinktank/en/document.html?reference=EPRS_BRI(2020)646180)

[S_BRI\(2020\)646180](https://www.europarl.europa.eu/thinktank/en/document.html?reference=EPRS_BRI(2020)646180)

Key Figures | ACEA - European Automobile Manufacturers' Association. (n.d.). Retrieved

May 19, 2020, from <https://www.acea.be/statistics/tag/category/key-figures>

La automoción, sector estratégico en la economía vasca. (n.d.). Retrieved June 22, 2020,

from [https://www.bizkaiatalent.eus/pais-vasco-te-espera/apuesta-de-](https://www.bizkaiatalent.eus/pais-vasco-te-espera/apuesta-de-futuro/automocion-estrategico-economia/)

[futuro/automocion-estrategico-economia/](https://www.bizkaiatalent.eus/pais-vasco-te-espera/apuesta-de-futuro/automocion-estrategico-economia/)

Luxembourg, major hub of business, research and innovation | Trade & Invest. (n.d.).

Retrieved June 22, 2020, from <https://www.tradeandinvest.lu/business-sector/automotive-sector/>

Macron says support for France's auto industry will be "massively amplified." (2020, May 26). Automotive News Europe.

<https://europe.autonews.com/automakers/macron-says-support-frances-auto-industry-will-be-massively-amplified>

Northvolt is building a future for greener batteries. (n.d.). Retrieved June 2, 2020, from

<https://cen.acs.org/energy/energy-storage-/Northvolt-building-future-greener-batteries/97/i48>

Paper: 25 actions for a successful restart of the EU's automotive sector | ACEA - European

Automobile Manufacturers' Association. (n.d.). Retrieved June 22, 2020, from <https://www.acea.be/publications/article/paper-25-actions-for-a-successful-restart-of-the-eus-automotive-sector>

Share of direct automotive employment in the EU, by country | ACEA - European

Automobile Manufacturers' Association. (n.d.). Retrieved May 5, 2020, from <https://www.acea.be/statistics/article/share-of-direct-automotive-employment-in-the-eu-by-country>

Simon, F. (2020, January 8). Massive rise in EV charging points needed to reach EU climate goals, analysis finds. *Www.Euractiv.Com.*

<https://www.euractiv.com/section/electric-cars/news/massive-rise-in-ev-charging-points-needed-to-reach-eu-climate-goals-new-research-finds/>

State aid: Coronavirus: €5 billion loan guarantee by France. (n.d.). [Text]. European

Commission - European Commission. Retrieved June 3, 2020, from https://ec.europa.eu/commission/presscorner/detail/en/ip_20_779

The future success of the automotive industry is in its workforce | Randstad. (n.d.).

Retrieved May 25, 2020, from <https://www.randstad.com/workforce-insights/future-of-work/the-future-of-the-automotive-industry/>

ACEA. (2020). *Paving the Way to Carbon-Neutral Transport*. Brussels: European Automobile Manufacturers Association.

Commission, E. (2018). *EC*. Retrieved from EC:

<https://ec.europa.eu/transport/sites/transport/files/3rd-mobility-pack/swd20180245.pdf>

Bulgaria, A. C. (2017). *Automotive*. Retrieved from Automotive: http://colliers.bg/newsletter/e-newsletters/Colliers_Market_reports/H2-2017/Automotive-report_EN.pdf

Croatia, I. I. (2018). *InvestCroatia*. Retrieved from InvestCroatia: <http://investcroatia.gov.hr/wp-content/uploads/2018/11/automotive-sector-croatia.pdf>

Commission, E. (2019). *Commission*. Retrieved from Commission:

<https://ec.europa.eu/eures/main.jsp?catId=2762&acro=lmi&lang=en&countryId=CZ®ionId=CZ0&nuts2Code=CZ02&nuts3Code=CZ020®ionName=Stredocesky%20kraj>

The French Automotive Industry. (2017). Retrieved from CCFA: https://ccfa.fr/wp-content/uploads/2018/07/analyse_statistiques_2017_en.pdf