Submission of home exam/report

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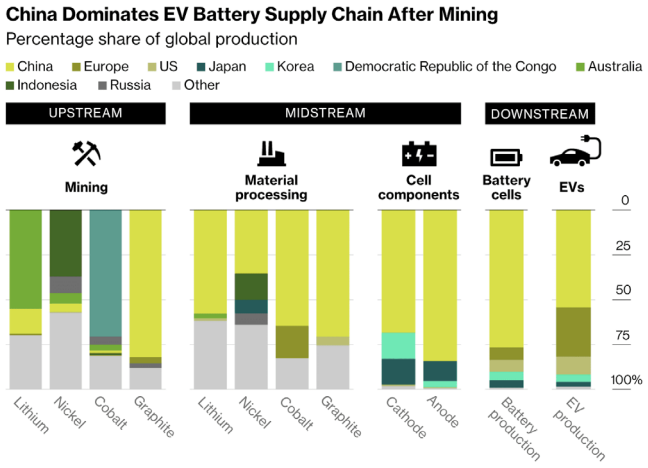
Question 1 : *Use news articles and media reports (not including social media) to highlight the main sustainability challenges, paradoxes and geopolitical tensions related to electrical vehicles and the "green shift" away from fossil fuels. Include relevant quotes from the news, and provide references. (maximum 2 pages).*

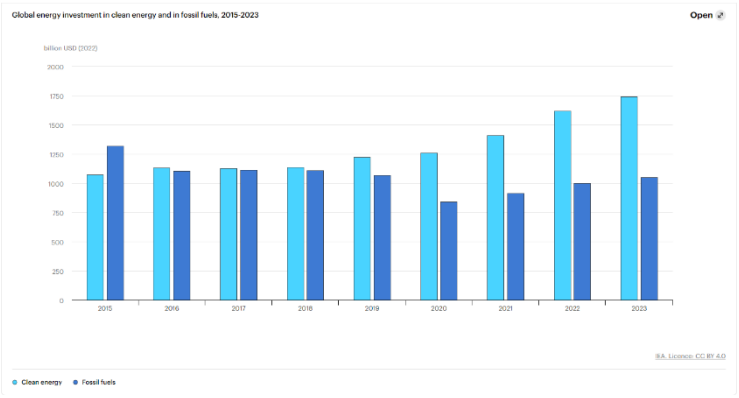
The global push towards electric vehicles (EVs) as part of the broader "green shift" away from fossil fuels promises a cleaner and more sustainable future. However, this transition is not without its challenges, paradoxes, and geopolitical tensions. As governments, industries, and consumers embrace EVs, they are confronted with a complex landscape of environmental concerns, economic implications, and geopolitical rivalries. In this paper, we will talk about these challenges, tensions and current situation of the green shift.

Getting things on the right track for sustainability in 2024 comes with some tricky problems. We need to switch over to clean energy while saying goodbye to fossil fuels “the transition from fossil fuels to renewable energy sources is central to sustainability strategies and net zero initiatives”. That topic was a central issue last year at the United Nations’ COP28 climate summit but that's easier said than done with all the obstacles in the way. We need to make sure our supply chains are sustainable, “businesses are looking to make their supply chain operations more sustainable”, which means not just cutting emissions, but also making sure workers are treated fairly and workplaces are safe, especially since supply chains can be really complicated. Keeping up with all the rules for reporting on sustainability is tough and there's a risk that some companies might try to make themselves look better than they actually are. Trying to reuse and recycle more stuff as part of a circular economy sounds great, but it's a big change that needs everyone to get on board. And while we're trying to grow our economies, we've got to make sure we're not wrecking the environment and losing important plants and animals along the way. These challenges show that we need to work together to solve big problems and make sure we're building a better future for everyone.

Concerning geopolitical tension, the main subject is about the resources that China already owns. China's ground is rich in resources such as lithium, and what is called “rare earths”. In addition, China is among the leaders in terms of extraction and processing of these minerals. If we compare it to Europe, no country owns a sufficient amount of those minerals to become independent from China. It leads us to the second point : being competitive on the EV market. China is emerging as a top producer of electric cars, with companies like BYD and NIO gaining popularity worldwide. This rise in production is sparking competition with European carmakers, which sometimes leads to disagreements about money and trade. Additionally, rules and laws about electric cars are different in China and Europe. This can cause problems if they can't agree on the same rules, or if one country makes it hard for the other to sell their cars there. Moreover, there are differences in opinions between China and Europe about the technology and ideas used in electric cars. This can lead to trust issues and disagreements, especially regarding technology sharing, protecting patents, and unfair competition. In summary, electric cars can help us reach our goals for a better environment, like fighting climate change, improving air quality, and switching to cleaner energy. They also have the potential to help create a circular economy by using resources more efficiently and managing materials better. But to make this happen, we need to solve some problems, like figuring out how to recycle materials from the batteries, designing cars that are easier to recycle, and building better infrastructure for electric vehicles



The "green shift" away from fossil fuels refers to the global transition towards cleaner and more sustainable energy sources. It encompasses a wide range of efforts aimed at reducing dependence on fossil fuels such as coal, oil, and natural gas, which are major contributors to greenhouse gas emissions and climate change. The green shift involves increasing investments in renewable energy sources like solar, wind, and hydroelectric power, implementing policies to promote their adoption, and fostering innovation in energy technologies. This shift reflects a growing recognition of the need to mitigate climate change and transition towards a more sustainable energy system for the future.
To this day, there has been a significant increase in investment in renewable energy sources like solar, wind, and hydroelectric power. According to the reports from the International Energy Agency (IEA), investment in renewable energy surpassed that of fossil fuels in recent years, indicating a shift in priorities.



Even though efforts are being made, we still face some challenges. For example, one of the problems is that the transition from fossil fuels towards electric vehicles is extremely expensive. It requires significant infrastructure changes, including the development of charging stations and upgrades to the electricity grid. According to Bloomberg, "Electrifying everything will require a huge infrastructure investment and the global auto industry will need to invest $11 trillion in EVs and related technology through 2050." Companies and governments have to be ready to invest into the green shift.

Question 2 : *What did you learn from our Chinese friends and their perspective during the workshops we had during Sustainable Leadership, regarding the topic above (Question 1). (maximum 1 page).*

Having the opportunity to exchange with the Chinese students was a wonderful experience. Their ‘Chinese student’ perspective was very surprising and so interesting as it totally differed from what we expected. To be honest, before talking with them, we had some stereotypes such as : the Chinese people don’t really care about ecology that much, they’re not making real efforts. But we quickly realized that they cared just as much as us French students.
Concerning the use of electric vehicles (EVs) and the challenges around them. The Chinese perspective was exactly the same as in France. They explained to us that the EVs market was growing very fast in China. They were totally correct. Indeed according to Ouest France :*”in the fourth quarter of 2023, BYD overtook Tesla for first place in electric vehicle sales worldwide. The Chinese sold 526,400, compared to 484,500 for the American.”* Astro, a chinese student, added that apart from the big cities like Beijing or Shanghai,the use of EVs is still not a thing. That’s because even though the market is growing, EV’s are not implemented like in Norway. In fact, the EVs are reserved for wealthy people because they are way more expensive than normal cars. Also the infrastructures are absolutely not ready, there aren't enough charging stations and electricity can be really expensive. It’s exactly the same as in France. Lize, another Chinese student, added that the Chinese government strongly supports the transition to EVs. The Chinese government removed the purchase tax (10% of the sales price) for EVs in 2014; it maintains an extremely high bonus: 55,000 yuan, or €7,600, supplemented at the local level by additional aid, such as free license plates in large cities.
We didn’t know that China supported EVs that much, even less that they were doing actions for the environment. This exchange was very stimulating and enriching.

Question 3 : *What sustainability goals - out of the ones we focus on in the course - are affected by the shift toward electric vehicles, and how. Would you argue that electric vehicles play an important role in taking us to a circular economy ("the doughnut" model). Why, or why not. (maximum 1 page).*

First of all, what is the doughnut model ? The doughnut model symbolizes a balanced area where humanity can thrive, situated between the limits of our planet and the fundamental needs of people. The goal of the doughnut economy is to keep our actions within these planetary boundaries while ensuring everyone's basic needs are met. Therefore, the concept of the doughnut economy stresses the importance of reshaping our economic system to prioritize sustainability and fairness. It acknowledges the ecological limits of our planet and aims to fulfill the essential requirements of everyone worldwide. The shift toward electric vehicles can have significant implications for several sustainability goals:

Climate Action: Electric vehicles (EVs) produce fewer greenhouse gas emissions compared to traditional internal combustion engine vehicles, especially if the electricity they use comes from renewable sources. By reducing emissions from transportation, EVs contribute to mitigating climate change, which is a critical sustainability goal.

Resource Efficiency: While EVs can contribute to resource efficiency by reducing the consumption of fossil fuels, there are concerns about the extraction and processing of materials needed for their batteries, such as lithium, cobalt, and nickel. However, advancements in battery technology and recycling processes can improve resource efficiency in the future.

Air Quality: Electric vehicles produce zero tailpipe emissions, which helps improve air quality, particularly in urban areas where air pollution from vehicles is a significant concern. By reducing emissions of pollutants such as nitrogen oxides and particulate matter, EVs contribute to better public health outcomes.

Energy Transition: The shift toward electric vehicles is closely linked to the transition to renewable energy sources. Increased adoption of EVs provides an opportunity to integrate renewable energy sources like wind and solar into the transportation sector, thus reducing reliance on fossil fuels and promoting a more sustainable energy mix.

Regarding the transition to a circular economy, electric vehicles can play a significant role, but challenges remain:

Materials Management: Electric vehicle batteries contain valuable materials that can be recycled, such as lithium, cobalt, and nickel. Implementing effective recycling processes for these materials can reduce the demand for virgin resources and minimize environmental impacts associated with their extraction.

Infrastructure: Developing infrastructure for battery recycling and remanufacturing is crucial for closing the loop in the electric vehicle supply chain. This includes establishing collection systems for end-of-life batteries, investing in recycling facilities, and promoting remanufacturing and refurbishment of EV components.

In conclusion, electric vehicles can contribute to achieving sustainability goals related to climate action, air quality, and energy transition. While they have the potential to support a circular economy through improved resource efficiency and materials management, realizing this potential requires addressing challenges related to materials recycling, product design, and infrastructure development.

Question 4：*Please give your personal feedback(s) the course, Sustainable Leadership. Include both its educational (what did you learn?) and social aspects (what did you experience?). (maximum 1 page).*

The course was a great opportunity for us to dive deep into understanding the environment and why it's so crucial to pay attention to it. It gave us a chance to see the bigger picture globally. We learned that China plays a massive role in this, with its significant emissions of greenhouse gases, while on the flip side, Norway stands out for its efforts to go green. Having conversations with both Chinese and Norwegian students and professors gave us a whole new perspective on the issue.

Moreover, hearing from students and educators from Ukraine added another layer of insight to the course. It was interesting to see how different regions of the world approach environmental concerns and the various challenges they face.

One of the best parts of the course was the interactive nature of the discussions. We had the opportunity to engage in thoughtful conversations, where different viewpoints were shared and debated. It was enlightening to see how diverse opinions could shape our understanding of environmental issues.

At its core, the course emphasized the urgent need for a shift in mindset if we're to move towards a sustainable future. The prevailing attitudes often prioritize short-term gains over long-term environmental stability. This mindset is prevalent not just among individuals but also among many powerful nations. However, if we're serious about ensuring a habitable planet for future generations, it's crucial for these influential players to take more responsibility and allocate resources towards environmental conservation efforts. Ultimately, the course served as a wake-up call, highlighting the pressing need for collective action to address environmental challenges on a global scale.

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