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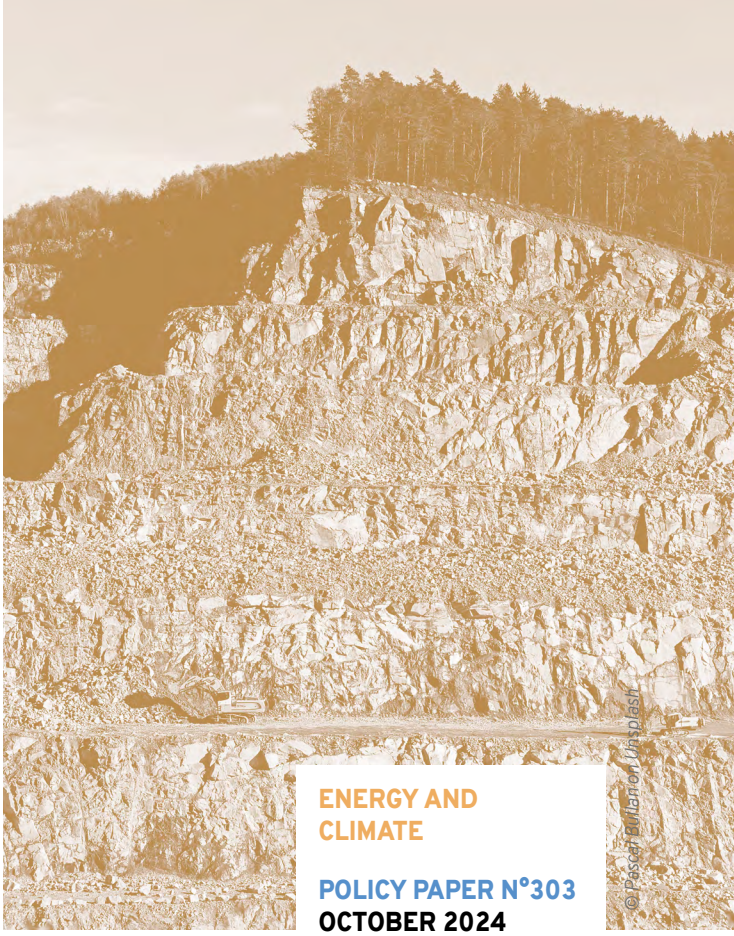

The Resilience of Critical Raw Materials Value Chains in France

Does France have the resources to match its ambitions?

ENERGY AND CLIMATE

POLICY PAPER N°303
OCTOBER 2024

#criticalrawmaterials
#France
#cleanenergy

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The author would like to thank Camille Defard (Institut Jacques Delors) as well as Elvire Fabry (Institut Jacques Delors), Sylvie Matelly (Institut Jacques Delors), Pénélope le Menestrel (Breakthrough Energy), and Fanny Verrax (Lyon School of Management, emlyon) for their review. They do not necessarily share the views presented here.

Executive summary

The increased French consumption of critical raw materials (CRMs) is too important for supplies to be secure in the medium to long term. These problems of access to CRM could slow down or even threaten the energy transition, which is very material-intensive, as we can, for instance, see in the manufacturing process of batteries or the extension of electricity grids. Lithium requirements could increase by a factor of 8.7 by 2040, graphite by a factor of 3.9 and copper by a factor of 1.5. France, which has major automotive groups, is seeking to accelerate its re-industrialisation and boost its international competitiveness, is therefore particularly exposed.

The Varin Report, which was submitted to the French government in early 2022 and has remained confidential, has led to several advances in the sector, including the creation of the French Observatory of Mineral Resources for Industrial Sectors (OFREMI), a fund dedicated to CRMs and managed by InfraVia Capital, and the strengthening of French CRMs diplomacy. At the same time, France's industrial policy is being strengthened, notably through France 2030 and the creation of gigafactories for batteries, but also with projects to reopen mines (for lithium, in the Allier region, for example).

However, these ambitions and policies come up against limits of all kinds: technological (Chinese manufacturers have a strategic lead), financial, but also environmental and social, with mines and CRMs having major impacts.

There are several options open to France:

- Securing the offer through :
  - International partnerships, signed by the European Union (EU) and France - considering that these must be conditional on compliance with European environmental, social and governance standards, particularly in terms of human rights for Indigenous Peoples,
  - The development of domestic mining and refining activities, which entails significant environmental damage and raises questions about the acceptability to local populations and the uses of the CRMs extracted,

- Limiting the increase in demand, or even eventually reducing current demand... :
  - In raw materials. via recycling policies and, more generally, the circular economy, but also by switching to less critical materials,
  - In raw and secondary materials by improving eco-design, an ambitious innovation policy to improve the efficiency of raw materials and reduce their use, and sobriety policies.

The main recommendations of this report are as follows:

- Involve the National Commission for Public Debate (*Commission nationale du débat public, iCNDP*), strengthen democratic debate and transparency, and reinforce democratic processes on mining issues.

- Implement budgetary and non-budgetary measures to boost the competitiveness of French and European industries.

- Accelerate the implementation of policies aimed at reducing French needs, i.e. :
  - Strengthen existing legislation on the circular economy and recycling.
  - Introduce a concept of eco-conditionality linked to the use of CRMs in support of industries linked to CRMs.
  - Launch a debate on the use of CRMs and promote sobriety.

- Promote European cooperation.

- Strengthen ESG requirements for domestic projects and strategic partnerships.

Introduction

Europe's, and therefore France's, energy transition is threatened by over-dependence on supplies of critical raw materials (CRMs). France's CRM needs and availability are poorly understood. A 2022 report submitted to the government by Philippe Varin, former Chairman and CEO of the car manufacturer PSA Group, estimates that demand for CRMs such as lithium, nickel and rare earths will increase two to fourfold over the next few years (or even more, according to other estimates - see Table 1 below), while France is almost 100% dependent on external supplies of these CRMs[1]. The report deplores the fact that Europe is some twenty years behind China, which controls 40-60% of the value chains associated with battery manufacturing (the International Energy Agency - IEA - estimates that China holds almost 90% of production capacity for active cathode CRMs and over 97% of active anode CRMs[2]).

This dependence stands as a threat to Europe's energy transition, for example in terms of electrification, battery gigafactory projects and its ambitions to electrify its car fleet[3]. It is exacerbated by a lack of planning in terms of urbanization and public transport, as well as control of the size, mass and capacity of individual and public transport vehicles, and by a lack of reflection on the part of carmakers about the evolution of their *business models* and their added value and contribution to the decarbonization of the economy. As one of the European countries with an automotive industry, France is one of the economies most exposed to these risks.

The government has adopted a proactive policy to address these issues. It includes support for the country's re-industrialization, allowing greater control over value chains, the opening of new mines, and the acquisition of foreign holdings or new partnerships. This paper aims to assess the effectiveness of these new measures and to see to what extent they can improve the country's resilience in the event of a major supply disruption. It will focus on the CRMs for which demand is growing fastest - cobalt, copper, graphite, lithium, nickel and rare earths (see Table 1) - and on their main applications linked to the decarbonization of energy systems (electrification, battery manufacture and electric vehicles). The aim is firstly to assess trends in French demand, analyze the mechanisms recently put in place to meet this demand, identify current weaknesses and, lastly, formulate recommendations for the future. Finally, this study complements the one on the *Critical Raw Materials Act* published in April 2024[4]

1 Please note that as the report is not public, we have not had access to it.
2 IEA (2024) *Global EV Outlook*, available at https://www.iea.org/reports/global-ev-outlook-2024,
3 « La France dévoile sa stratégie pour sécuriser l'approvisionnement en métaux critiques », *Les Echos*, 10 January 2022, available at https://www.lesechos.fr/finance-marches/marches-financiers/la-france-devoile-sa-strategie-pour-securiser-lapprovisionnement-en-metaux-critiques-1378050. See below for an analysis of the report's content.
4 Defard C. and Voïta T. (2024) "Strengthening EU green sovereignty through the Critical Raw Materials Act", P*olicy Paper* n°300, Jacques Delors Institute, April, available at https://institutdelors.eu/en/publications/strengthening-eu-green-sovereignty-through-the-critical-raw-materials-act/

I . Unsustainable consumption in the medium to long term

The increased French consumption of CRMs is too important for supplies to be secure in the medium to long term. Many studies have expressed concern about this, including those by ADEME (the French Environment and Energy Management Agency), which has drawn up 4 scenarios designed to enable France to achieve carbon neutrality by 2050[5]. In Scenarios 3 and 4, which focus mainly on the development of green technologies, France's share of global consumption of many CRMs (lithium, cobalt, rare earth elements and graphite) exceeds its current weight in the world in relation to its population and economy[6]. In its *Energy Futures 2050* scenario, the French electricity company RTE is concerned about future tensions over copper, which is essential for electricity generation, mainly because of a depletion of deposits coupled with strong growth in global demand[7]. In addition, the results of a study on metal demand for electric vehicles published by WWF, EY and the Institut Mobilités en Transition (IMT) support ADEME's conclusions: if current trends continue, the production of batteries for French electric cars for private use is expected to consume 7,000 tons of lithium, 29,000 tons of nickel, 3,000 tons of cobalt and 55,000 tons of copper by 2030 - an average of 2.7% of the world's capacity for these CRMs, while France is expected to account for only 0.8% of the world's population and 2.3% of world GDP[8]. A study published in 2023 by the IFRI further confirms the conclusions of the ADEME and WWF et al. studies: at the current rate, France is in danger of increasing its foreign dependence and will have to adopt sobering measures to limit this[9]. Such an imbalance makes France vulnerable, particularly to richer countries, which are prone to be able to buy CRMs at a higher price, thereby depriving France of certain supplies. France is also more vulnerable to the instrumentalization of CRMs for geopolitical, trade revenge or other purposes.

This pressure on supplies creates the risk of international competition. Against a backdrop of limited availability of resources and the repolarization of international geopolitics, French manufacturers will inevitably compete with each other, and with their foreign and even European counterparts, who are also dependent on external supplies. This could ultimately have many non-exclusive consequences: 1) certain countries (China, for example) could negotiate partnerships with producers that are more advantageous for 2) On the producer side, exporting countries could decide to restrict or even halt their sales to Europe or France, in favor of domestic supplies and increasing refining in to benefit from the added value of this phase, or create a commercial balance of power by using European and/or French dependence as leverage on other issues. A case in point is China's restrictions on gallium and germanium exports[10]. 3) Without a real common strategy, competition could be exacerbated within the EU itself, with countries such as France and Germany

5 *Transition(s) 2050: Choosing now. Acting for the climate. Synthesis. New edition 2024*, ADEME, 2024, available at https://librairie.ademe.fr/recherche-et-innovation/5071-prospective-transi- tions-2050-synthese-edition-2024h1w

6 *Ibid.*

7 RTE (2024) *Energy Futures 2050*, RTE, updated in September and available at https:// rte-futurse-nergetiques2050.com/scenarios/m0

8 WWF, IMT, EY (2023) "Métaux critiques : l'impasse des SUV. What scenario for a successful transition in mobility?", 9 November, available at https://www.wwf.fr/vous-informer/actualites/me- taux-critiques-le-wwf-france-alerte-sur-les-suv-electriques

9 Eyl-Mazzega M-A, Gherasim D-P, et al (2023) "Comment gagner le pari industriel de la mobilité électrique en France et en Europe?", *IFRI Studies*, IFRI, November, available at https://www. ifri.org/sites/default/files/atoms/files/ifri_coll_mobilite_propre_2023.pdf

10 "China export curbs choke off shipments of gallium, germanium for second month", *Reuters*, 20 October 2023, available at https://www.reuters.com/world/china/china-export-curbs-choke-off-shipments-gallium-germanium-second-month-2023-10-20/

pursuing separate policies (see, for example, the discussions between Germany and Canada on the subject).[11]

In addition to this competition between countries, there are conflicts over the use of CRMs, as illustrated in Table 1: not only will **general demand** for these CRMs increase in the coming years, but the proportion of this **demand devoted to the energy transition** is also set to grow until 2030, while the digital transition itself requires exponential consumption of CRMs[12]. For example, copper, which is essential for electrical uses (in particular distribution, transmission and electrical systems in buildings), is also used in the construction industry (for plumbing, roofing, shipbuilding and cladding), industry, transport, finished products (see coins in some countries), housing accessories and water heaters.[13]

TABLE 1. Increase in demand for a selection of CRMs and the share of clean energy in this demand by 2030 in a net-zero scenario

Metal		Copper	Lithium	Nickel	Cobalt	Graphite	Rare earths
Increase in global demand (2023 - 2040)		x1,5	x8,7	x2,1	x2,2	x3,9	x1,9
% of demand for the energy sector (incl. mobility)	2023	24%	56%	15%	30%	28%	18%
	2030	45%	87%	50%	59%	65%	42%

▲ Source: International Energy Agency (IEA) (2024) Global Critical Minerals Outlook 2024, 17 May available at https://origin.iea.org/reports/global-critical-minerals-outlook-2024

In addition, a significant proportion of critical mineral reserves are located on indigenous territories or in their immediate vicinity[14]. This ratio is over 75% for lithium, over 55% for vanadium and over 35% for nickel. Convention 169 of the International Labour Organisation (ILO) concerning Indigenous and Tribal Peoples, adopted in 1989, and the United Nations Declaration on the Rights of Indigenous Peoples, adopted by the UN General Assembly in 2007, have established fundamental rights specific to these populations, including their right to give - or not - their Free, Prior and Informed Consent (FPIC) for the use and exploitation of their lands. To date, this right has been widely flouted by governments and mining companies[15], including within the European Union[16]. The widespread violation of their fundamental rights,

11 Natural Resources Canada (2023) "Minister Wilkinson Marks Progress in Supplying Germany With Clean, Reliable Energy", Government of Canada, 30 March available at https://www.canada.ca/en/natural-resources-canada/news/2023/03/minister-wilkinson-marks-progress-in-supplying-germany-with-clean-reliable-energy.html

12 See also, on conflicts over the use of rare earths. Defard C. and Voïta T. (2024) "Strengthening EU green sovereignty through the Critical Raw Materials Act", *op. cit.*

13 Hache E. et al (2019) "Copper: what future for this metal essential to the energy transition?", *The Conversation*, 11 July, available at https://theconversation.com/cuivre-quel-avenir-pour-ce-metal-essentiel-a-la-transition-energetique-119500

14 Owen, J.R., Kemp, D., Lechner, A.M. et al.(2023) Energy transition minerals and their intersection with land-connected peoples. Published in NATURE, Nat Sustain 6, 203-211. https://www.nature.com/articles/s41893-022-00994-6

15 Oxfam (2023). Recharging Community Consent: Mining companies, battery minerals, and the battle to break from the past. https://webassets.oxfamamerica.org/media/documents/2023_OXF_Recharging_Community_Consent_Report_FNL-AA.pdf

16 Particularly in relation to the Sámi People who live on land in Sweden and Finland (EU) and Norway (non-EU). See https://news.mongabay.com/2023/03/sami-rights-must-not-be-sacrificed-for-green-energy-goals-of-europe-commentary/

particularly in FPIC, contributes to numerous social conflicts and the violent repression of opponents, in addition to the many other conflicts of use surrounding mining in most regions of the world. These phenomena make the exploration and exploitation of deposits more difficult and uncertain (as shown by the recent closure of one of the world's largest copper mines in Panama in December 2023 following nationwide industrial action).

Faced with a clear risk of shortages of CRMs, France has several complementary options:

1. Securing the offer through :

   A. International partnerships, signed by the European Union (EU) and France - considering that these must be conditional on respect for ESG issues, particularly in terms of human rights for Indigenous Peoples,

   B. The development of domestic mining and refining activities,

2. Limiting the increase in demand, or even eventually reducing current demand:

   A. in raw materials through recycling policies and, more generally, the circular economy, as well as substitution for less critical materials,

   B. in raw and secondary materials through improved eco-design, an ambitious innovation policy to improve the efficiency of raw materials and reduce their use, and sobriety policies.

II • The renewal of France's CRMs procurement policy

I THE VARIN REPORT

European and national regulations have been established in recent years to respond to these tensions over supplies. In France, Philippe Varin was tasked with drawing up proposals to strengthen the industry's security of supply for CRMs. These proposals, generally referred to as the "Varin Report", were submitted to the Ministers for Ecological Transition and Industry in January 2022, but have remained confidential due to the strategic nature of the issue. The main proposals made public comprise three parts[17]:

– The creation of the French Observatory of Mineral Resources for Industry (OFREMI)

Launched in November 2022, OFREMI is designed to improve knowledge of French energy sources and needs. OFREMI is a partnership between six institutions: the Bureau des ressources géologiques et minières (BRGM), the CEA (Commissariat à l'énergie atomique et aux énergies alternatives), ADEME, IFRI (Institut français des relations internationales), IFP Energies nouvelles, the Conservatoire national des arts et métiers (CNAM), the Conseil national de l'industrie and France 2030[18]. OFREMI must also respond to the problems of poor planning and understanding of metal requirements, as public authorities are dependent on the nomenclatures developed by manufacturers, who themselves have only a very partial unders-

17 Summarized in "Comment la France sécurise son approvisionnement en métaux critiques", *Les Echos*, 13 May 2024.
18 https://www.ofremi.fr/fr

tanding of their needs and the availability of CRMs (wind turbines with or without permanent magnets, superfluous electronics in cars, different technologies for batteries or solar panels, etc.)[19].

– The launch of a French investment fund dedicated to CRMs

France has launched a mining investment fund in 2023, managed by InfraVia Capital, which aims to invest €2 billion (including €500 million provided by the French government). The fund acts as a minority investor in 10 to 15 refining or mining projects in Europe or abroad over the next 4 to 5 years. These projects must generate some kind of benefit (financial, safety, etc.) for France. Future projects are currently being identified. In addition, although representatives of ministries sit on the strategic committee, the fund governance is entirely private, which should allow other countries or private foreign investors to join. Other European countries are considering, or have already set up more or less equivalent structures: this is the case, for example, in Germany, with a €1 billion fund to be managed by the KfW development bank, and in Italy, which plans to use leftovers from its post-Covid 19 economic recovery fund for this purpose[20].

There is also a European fund set to raise €5 billion by 2030, managed by EIT InnoEnergie and Demeter. Its objective is to support existing projects that are considered promising but are struggling to find funding. One of the criticisms that can be levelled at the European Critical Raw Materials Act (CRMA) is that it makes no provision for the creation of a European fund dedicated to CRMs, while the STEP (Strategic Technologies for Europe Platform) has drastically reduced the funds initially earmarked for CRMs[21]. Such a fund would have made it possible to increase support for projects across the entire value chain: exploration, extraction, recycling and refining. Cooperation between these different funds could enable Europe to increase its financial clout in the face of investment from other countries. Finally, the Draghi report on European competitiveness suggests allocating part of the Innovation Fund to CRMs.[22]

– CRMs diplomacy" through partnerships with various producer countries

Finally, the Varin report also calls for the acceleration of "CRMs diplomacy". France, via BRGM in particular, is stepping up its cooperation with third countries in this area. The first half of 2024 saw the signing of agreements between France and Zambia and Angola (in February), Bolivia (in April), the Republic of Uzbekistan and Canada (in April) and the Democratic Republic of Congo (in May)[23].

19 Interview, September 2024.
20 "France, Germany, Italy seek private input for €2.5bn critical mineral investment", *Euronews*, 17 May 2024, available at https://www.euronews.com/green/2024/05/17/france-germany-italy-seek-private-input-for-25bn-critical-mineral-investment
21 See Defard C. and Voïta T. (2024) "Strengthening EU green sovereignty through the Critical Raw Materials Act", *op. cit.*
22 Draghi M. (2024) *The Future of Competitiveness*, European Commission, September available at https://commission.europa.eu/document/download/97e481fd-2dc3-412d-be4c-f152a8232961_en?filename=The%20future%20of%20European%20competitiveness%20_%20A%20competitiveness%20strategy%20for%20Europe.pdf
23 BRGM, "Actualités" pages, "Territoire = international" section, available at https://www.brgm.fr/fr/actualites?territories=International

I OTHER DEVELOPMENTS: OPENING MINES AND STRENGTHENING THE INDUSTRY

Following the Varin report, the French President also announced that the strategic inventory of mineral resources of the French subsoil (which belongs to the State) would be updated in 2023, in anticipation of one of the provisions of the European CRMA. The last reference inventory was carried out between 1970 and 1995. It is now considered obsolete, for several reasons: areas excluded at the time because they were under the control of private operators holding exclusive exploration licenses, exploration techniques that have evolved considerably, and new priorities compared with those of the time (lithium resources, for example, have never been analyzed). BRGM has been entrusted exclusively with the task of carrying out this new IRM, which is due to start at the end of 2024 and last for 5 years[24].

In addition, a number of CRM-related industrial projects have been selected to receive a total of €100 million in support from the French government, as part of the France 2030 plan. The first of these were announced in October 2022, and include lithium extraction projects by Imerys (see below), battery recycling by Eramet, lithium refining by Viridian, extraction of CRMs from e-waste by Sanou Koura and also WEEECycling[25].

At the same time, the growing number of partnerships between countries comes along with major industrial group strategies to secure their supply chains. Created in 2021 following the merger of Fiat Chrysler and Peugeot-Citroën, the Franco-Italo-American group Stellantis, for example, has set up a CRMs division and a strategy aimed at mitigating supply risks, including the use of the circular economy, partnerships and a vertical integration strategy involving the creation of joint ventures. These include the Automotive Cells Company (ACC), created in partnership with TotalEnergies and Mercedes Benz, and initiatives with Samsung SDI and LG Energy Solutions. These JVs should lead to the creation of five giga-factories by 2025 in Europe and North America[26]. At the same time, Stellantis has signed a series of partnerships, summarized in Table 2 below, which should enable the group to secure its supplies until at least 2027[27]. The international NGO Transport and Environment (T&E) estimates that carmakers in Europe have secured only 16% of the main CRMs they need until 2030[28].

24 "Launch of the update of the national inventory of French subsoil mineral resources" in Rapport d'Activité 2023, BRGM, 2024, available at https://rapport-activite.brgm.fr/en/launch-programme-update-national-inventory-france-subsurface-mineral-resources

25 "France 2030: the first 5 winners of the call for critical Materials projects", *entreprise.gouv. fr*, 25 October 2022, available at https://www.entreprises.gouv.fr/fr/actualites/france-2030/france-2030-5-premiers-laureats-de-l-appel-projets-metaux-critiques

26 *Corporate Social Responsibility Report 2023*, Stellantis, available at https://www.stellantis.com/content/dam/stellantis-corporate/sustainability/csr-disclosure/stellantis/2023/Stellantis-2023-CSR-Report.pdf

27 "Stellantis is becoming a player in mining and rare CRMs to secure its production", *Le Monde*, 3 October 2023, available at https://www.lemonde.fr/economie/article/2023/10/03/stellantis-devient-un-acteur-des-mines-et-des-materiaux-rares-pour-securiser-sa-production_6192193_3234.html

28 "European carmakers are not securing enough of their metal supplies", T&E, December 2023, available at https://www.transportenvironment.org/te-france/articles/les-constructeurs-automobiles-europeens-ne-securisent-pas-assez-leurs-approvisionnements-en-metaux

TABLE 2. Stellantis Group's main investments and partnerships to secure access to strategic CRMs

Nature of the partnership	Company name	Nationality(ies)	Targeted CRMs
Participation to become a second shareholder	Vulcan Energy	Germano-Austrian	Lithium
Investment of 100 million euros	CTR	American	Lithium
Acquisition of 11.5% of the capital	Alliance Nickel	Australian	Nickel & Cobalt
Agreements	Element 25	Australian	Manganese sulphate
Agreements	Terrafame	Finnish	Manganese sulphate
Participation to become a second shareholder	McEwen Copper	American	Coppe
Investment of €5 million, 19.9% shareholding	Kuniko	Norwegia	Nickel, Cobalt, Coppe
Investment of 5 million euros	NioCorp	American	Rare earths

▲ Source: "Stellantis becomes a player in mining and rare CRMs to secure its production", *Le Monde*, 3 October 2023, *op. cit.*

– Battery Valley projects

Other partnerships have been set up to accelerate the recycling of batteries, many of them taking advantage of the Dunkirk "Battery Valley" ecosystem, with expected investments totaling 8.5 billion euros, as part of projects to produce and/or recycle the equivalent of 64 GWh of batteries and components by 2030[29]. This "battery valley" should play a central role in achieving the objectives of France 2030, with 4 gigafactories (from ACC, Envision, Verkor and ProLogium), 100 to 120 GWh of battery production capacity and 10,000 direct jobs[30]. These projects include:

- **The Orano group, in partnership with the Chinese company XTC, a subsidiary of the state-owned Chinese Xiamen Tungsten Corporation, to create a gigafactory in Dunkirk,** with an investment of €1.5 billion by 2030, and activities in the production of cathode precursors, active cathode CRMs and the recycling of CRMs contained in batteries and cathode precursor production scrap.[31]

29 "Dunkerque, au cœur de la vallée de la batterie française", Dunkerque Promotion, 29 September 2024, available at https://dunkerquelenergiecreative.fr/en/news/9-dunkrik-at-the-heart-of-frances-battery-valley/

30 France 2030 (2023) *La Stratégie nationale sur batteries de France 2030: au coeur de la décarbonation des mobilités*, *May*, available at https://www.economie.gouv.fr/files/files/2023/879%20-%20Dossier%20de%20presse%20-%20La%20strat%C3%A9gie%20nationale%20sur%20les%20batteries%20de%20France%202030%20-%20au%20c%C5%93ur%20de%20la%20d%C3%A9carbonation%20des%20mobilit%C3%A9s.pdf?v=1699543603

31 "XTC-Orano: un projet, 4 activités autour de la cathode en Hauts-de-France", *Nord France Invest*, 15 May 2023, available at https://www.nordfranceinvest.fr/blog/xtc-orano-un-projet-4-activites-autour-de-la-cathode-en-hauts-de-france/

- **The ReLieVe hydrometallurgical refining plant, a joint venture between Eramet and Suez, is due to start activities in 2027.** It will reuse 25,000 tons of black mass (nickel, cobalt and lithium) a year from end-of-life electric vehicle batteries and scrap from factories, at a total investment of €300 million to produce 520kt of battery modules a year, or 200,000 electric vehicle batteries.[32]

- **The Verkor plant aims to power 300,000 electric vehicles a year by 2027**, with the equivalent of 16 GWh of batteries a year and an investment of €1.5 billion. Verkor is backed by Renault, thanks to a long-term partnership signed in 2023 under which Verkor is to supply the carmaker with 12 GWh of batteries a year. These will be used in particular for the 100% electric Alpine C-Crossover GT.[33]

- **Taiwan's ProLogium is planning to** invest a total of €5.2 billion to set up a 48GWh battery manufacturing plant and research laboratory by 2030.[34]

- T**he activities of Borax France**, which is already developing boric acid for cathodes and is studying the possibility of opening a new production line dedicated to lithium hydroxide for batteries.[35]

However, the Battery Valley and France 2030 targets suffer from technical problems, such as those encountered by Swedish manufacturer Northvolt, considered to be the European pioneer in the sector. The group is experiencing difficulties that are forcing it to abandon the manufacture of active cathode materials[36]. ACC is struggling to realize its ambitions. Mainly due to technical problems, the group has had to put on hold plans for factories in Germany and Italy. Worse still, Stellantis has had to abandon its plans to equip its Peugeot e-3008 and e-5008 models with batteries manufactured by ACC, in favor of those made by China's BYD[37]. Ironically, the announcement of these difficulties coincides with the publication of the Draghi report, which calls for a new impetus in the decarbonization technology sector[38].

Other major French projects outside Hauts-de-France include Carester's rare earth recycling project in Lacq (in the Pyrénées-Atlantiques region), MagREESource's project in Grenoble (for wind turbines), Solvay's project in La Rochelle and the KL1 group's plans to open a nickel and cobalt conversion plant for electric vehicles[39].

32 According to the project consultation file: Eramet et Commission nationale du débat public (CNDP) (2024) *Projet ReLieVe : d'usine de recyclage de batteries de véhicules électriques à Dunkerque (59)*, available at https://www.debatpublic.fr/sites/default/files/2024-03/ERAMET-Projet-RELIEVE-Dossier-de-concertation-WEB-3.pdf

33 "Renault Group and Verkor: a long-term commercial partnership to supply high-performance low-carbon batteries", Verkor - News, 13 April 2023, available at https://verkor.com/renault-group-et-verkor-un-partenariat-commercial-long-terme-pour-la-fourniture-de-batteries-bas-carbone-haute-performance/

34 "ProLogium Announces €5.2b Gigafactory in Dunkirk France and Greets French President Emmanuel Macron", PoLogium, press announcement, 12 May 2023, available at https://prologium.com/prologium-announces-e5-2b-gigafactory-in-dunkirk-france-and-greets-french-president-emmanuel-macron/

35 "Dunkerque, au cœur de la vallée de la batterie française", Dunkerque Promotion, 29 September 2024, *op. cit.*

36 "Struggling Northvolt stokes fear for Europe's battery future", *Reuters*, 13 September 2024, available at https://www.reuters.com/sustainability/struggling-northvolt-stokes-fear-europes-battery-future-2024-09-13/

37 "Pourquoi l'usine française de batteries Stellantis jette encore la moitié de ses cellules", *Numerama*, 9 September 2024, available at https://www.numerama.com/vroom/1803986-pourquoi-lusine-francaise-de-batteries-stellantis-jette-encore-la-moitie-de-ses-cellules.html

38 Draghi M. (2024) *The Future of Competitiveness*, European Commission, *op. cit.*

39 "En Europe et en France, l'embryon d'une filière des métaux", *Le Monde*, 31 May 2024, available at https://www.lemonde.fr/economie/article/2024/05/31/en-europe-et-en-france-l-embryon-d-une-filiere-des-metaux_6236566_3234.html and "MagREEsource, le petit prodige français de l'aimant-permanent", *Les Echos*, 26 April 2023, available at https://www.lesechos.fr/weekend/planete/magreesource-le-petit-prodige-francais-de-laimant-permanent-1937806

Finally, the French mining group Eramet is also active internationally, with nickel production in Indonesia, nickel production and processing in New Caledonia (see below), manganese production in the United States and Norway, manganese extraction and processing in Gabon and lithium extraction in Argentina.[40]

III . The weaknesses of current policies

I INSUFFICIENT EFFORTS?

Welcomed by the industry as a whole, the new French policy nonetheless leaves many points unresolved. The first question is whether the proposed initiatives are adequate to meet the challenges posed by the need to secure metal supplies and the lack of understanding of what is needed to ensure a fair and equitable energy transition for the whole population. Two and a half years after its publication, the report should include technologies whose potential has emerged since it was written, such as LFP batteries (lithium, iron, phosphate), which raises questions about the relevance of Europe's and France's gamble on NMC batteries (nickel, manganese, cobalt). In addition, the 500 million euros invested in the fund managed by InfraVia seems limited in relation to needs, particularly for this sector, which is capital-intensive and subject to major price variations.

The government also appears powerless to tackle the nickel crisis in New Caledonia. It has failed to prevent the closure of the Koniambo Nickel ferronickel plant in New Caledonia, which is 49% owned by Glencore of Switzerland and 51% publicly owned. The plant is 14 billion euros in debt and suffers from falling prices, energy costs and foreign competition. Société Le Nickel (SLN) of the Eramet group and Prony, two other companies involved in the sector in New Caledonia, are also in difficulty: the former lost €72 million in the first half of 2024, and the latter is at a standstill. The Ministry of the Economy had proposed support of over €200 million, comprising €60 million in energy price subsidies, €45 million in additional resources and a €100 million loan. Glencore did not consider this to be sufficient, saying that operating costs were too high and that "market conditions are currently very weak". The redundancy of the plant's 1,200 employees was confirmed in the summer of 2024[41].

Furthermore, the comments and analyses in the Varin Report make no mention of the quantified impact of the recommended actions, or of any measures that might make it possible to limit the increase in demand. Nearly three years after its publication, it is therefore still impossible to know to what extent the report's recommendations can help to absorb France's future deficit and what type of demand moderation measures are needed to ensure the country's energy sovereignty.

Finally, the focus on gigafactories should not obscure the fact that they represent just one link in a complex value chain. This extends from the mine to fine products, via preconcentration/foundry, refining, alloy, prefabrication and the semi-finished product. In addition, the manufacture of products is becoming increasingly complex due to the growing number of minerals used in the process. In this context, the use

40 Eramet Group website, "Our locations" page, available at https://www.eramet.com/fr/groupe-eramet/nos-implantations/

41 "Nouvelle-Calédonie : coup dur pour l'Etat, le géant du nickel Glencore va placer l'usine Koniambo en sommeil", *La Tribune*, 12 February 2024, available at https://www.latribune.fr/economie/international/nouvelle-caledonie-coup-dur-pour-l-etat-le-geant-du-nickel-glencore-va-placer-l-usine-koniambo-en-sommeil-990328.html and "Nouvelle-Calédonie : la direction de l'usine de nickel KNS annonce le licenciement de ses 1200 salariés", *Le Monde*, 26 July 2024, available at https://www.lemonde.fr/politique/article/2024/07/26/nouvelle-caledonie-la-direction-de-l-usine-de-nickel-kns-annonce-le-licenciement-de-ses-1-200-salaries_6258633_823448.html

of low-tech and the simplification of products seem essential to ensure national sovereignty.

Some players in the sector are optimistic, however, and believe that France is well on the way to acquiring a degree of strategic independence, thanks to the combined effects of downward readjustments in demand (which they consider unavoidable) and an increase in supply, via the opening of new mines[42].

THE DELICATE ISSUE OF OPENING MINES ON FRENCH TERRITORY - THE EXAMPLE OF EMILI

However, the issue of re-opening mines remains highly problematic in France. The lithium mine project by Imerys in the Allier region recently crystallized tensions, which were further heightened by the fact that it was granted the status of project of major national interest by a decree of July 2024[43]. If it obtains all the necessary authorizations, this project, called EMILI, is due to start up in 2028 and will extract lithium at a depth of between 75 and 400 meters for 25 years. It is expected to produce 34,000 tons of lithium a year, enabling the construction of batteries capable of equipping 700,000 vehicles a year for 25 years, at a cost of less than a billion euros (a figure that seems rather high compared with the current electric vehicle fleet, made up mainly of large vehicles and SUVs[44]). By way of comparison, just over 1.8 million new passenger cars were registered in France in 2023[45]: if the Imerys mine had been operational and if all the vehicles sold that year had been electric, EMILI would have been able to supply the lithium needed for batteries for 40% of sales in France (lithium, incidentally, representing only a small part of the total demand for CRMs for the construction and assembly of an electric vehicle). This project should therefore reduce Europe's dependence on lithium - some even hope it will ensure France's self-sufficiency in this metal. The lithium produced could also be used to power the gigafactories of batteries currently under construction[46]. Between April and July 2024, the Commission Nationale du Débat Public (CNDP) (National Commission for Public Debate) organized a public debate, which is considered to be exemplary, involving a large number of local and national players and consultations.[47]

Opponents of the project include France Nature Environnement (FNE), which considers it "incompatible with the challenges of ecological transition" because of the environmental impacts of the mine[48], the media outlet *Reporterre*, and the journalist Celia Izoard, author of several articles on the subject in Reporterre and who in 2024 published *La ruée minière au XXe Siècle (The Mining Rush of the 20th Century)*, a book that was extremely critical of mines (wherever they are located) and had

42 Interview, August 2024.
43 "Décret n°2024-740 du 5 juillet 2024 qualifiant de projet d'intérêt national majeur l'extraction et la transformation de lithium par la société Imerys dans l'Allier", *Journal officie*l, 7 July 2024, disponible sur https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000049893405
44 While this order of magnitude provides a useful comparison, there is currently no mechanism in place to ensure that this lithium actually ends up in batteries for cars running in France (exclusive supply or purchase agreement such as an offtake agreement, market regulation by the French authorities, tax or legal mechanisms to control the sector).
45 Ministère de la transition écologique et de la cohésion des territoires, Données études et statistiques, available at https://www.statistiques.developpement-durable.gouv.fr/immatriculation-des-vehicules-routiers
46 CNDP (2024) *Projet de mine de lithium dans l'Allier*, le Débat public, available at https://www.debat-public.fr/projet-de-mine-de-lithium-dans-lallier-4602
47 https://www.debatpublic.fr/mine-de-lithium-allier
48 "Pour ou contre la relance minière en France ?", FNE, News, 22 May 2024, available at https://fne.asso.fr/actualites/pour-ou-contre-la-relance-miniere-en-france

a certain impact when it came out[49]. Some researchers have also highlighted the major uncertainties surrounding the environmental impact of the mine, and even Imerys' lack of preparation on this subject[50]. The disastrous environmental impact of former mines has been well documented, particularly in the media, and is a source of concern to local populations, experts and environmentalists[51] and suffers from very inadequate regulation at the European level[52]. It should also be noted that some people are simply opposed to the development of electric vehicles (and therefore to the extraction of lithium to produce batteries), preferring vehicles with internal combustion engines.

Others, on the other hand, point to the rather favorable reception given to the project by local people, who see it as an opportunity to breathe new life into villages that have all too often been abandoned[53], and go so far as to express surprise that the project has not provoked more outcry. Another argument in favor of this mine is the idea that environmental, social and governance (ESG) standards remain stricter in France and Europe, where developing countries suffer from high levels of corruption, weak regulations and institutions that are too weak to apply them[54]. However, the poor management of the aftermath of mining in France raises questions about the ability of public authorities to implement and enforce regulations that would be more stringent than those in major mining countries such as Australia, Canada or the United States. These countries have all experienced mining disasters, long-term pollution and major social conflicts over these issues.

On the sidelines of the debate, the multi-stakeholder standard-setting NGO Initiative for Responsible Mining Assurance (IRMA) recently reminded the press that a mining site cannot be "clean" or "sustainable"[55]. Imerys, which is committed to complying with and implementing the IRMA Standard, also prefers the term "responsible" mine to "green" mine.[56]

49 Celia Izoard (2024) *La ruée minière au XXIe Siècle. Enquête sur les métaux à l'ère de la transition*, Seuil, Ecocène collection. The book is a "survey of mining sites around the world [and] reveals the deadlock and hypocrisy of this extractivist transition" (extract from the back cover).

50 Fanny Verrax (2024) "Exploitation de lithium dans l'Allier : une mine-responsable est-elle possible ?", *The Conversation*, 4 July, available at https://theconversation.com/exploitation-de-lithium-dans-lallier-une-mine-responsable-est-elle-possible-231093?utm_medium=email&utm_campaign=Ici%20la%20Terre%20-%2004072024%20-%20OK&utm_content=Ici%20la%20Terre%20-%2004072024%20-%20OK+CID_5b54a1b6acf0229a5c41b59a84275598&utm_source=campaign_monitor_fr&utm_term=Lire%20larticle

51 "Lithium, cuivre : quel avenir pour les mines françaises ?", *TF1*, report dated 8 August 2024, available at https://www.tf1info.fr/societe/videos/video-lithium-cuivre-quel-avenir-pour-les-mines-francaises-3065-2313909.html, "Dans les Cévennes, l'héritage empoissonné de l'après-mine", *Le Monde*, 11 May 2024, available at https://www.lemonde.fr/planete/article/2024/05/11/dans-les-cevennes-l-heritage-empoisonne-de-l-apres-mine_6232556_3244.html

52 "Mining Waste: Time for the EU to Clean Up", Briefing, T&E, 26 August 2024, available at https://www.transportenvironment.org/articles/mining-waste-time-for-the-eu-to-clean-up

53 Violeta Ramirez, Valentin Caball (2024) "Mine de lithium dans l'Allier : l'importance du passé minier dans l'accueil local du projet", *The Conversation*, 22 May, available at https://theconversation.com/mine-de-lithium-dans-lallier-limportance-du-passe-minier-dans-laccueil-local-du-projet-230063

54 This argument was taken up by Imerys and others, notably in "Lithium, cuivre : quel avenir pour les mines françaises ?", *TF1*, op. cit. but contested by Celia Izoard (2024) *La ruée minière au XXIe Siècle. Enquête sur les métaux à l'ère de la transition*, *op. cit.*

55 "Un site minier ne peut être qualifié de 'propre' ou de 'durable'", *Le Monde*, 9 May 2024, available at https://www.lemonde.fr/planete/article/2024/05/09/un-site-minier-ne-peut-etre-qualifie-de-propre-ou-de-durable_6232340_3244.html

56 Quoted by Verrax (2024) "Exploitation de lithium dans l'Allier : une mine responsable est-elle possible ?", *The Conversation*, 4 July, *op. cit.*

Recommendations

To pursue the energy transition, France needs to reduce its dependence on CRMs. However, this reduction must not be accompanied by measures that prioritize the energy transition to the detriment of environmental, social or governance issues. Here are several proposals to support, strengthen and even accelerate this strategy.

I INVOLVING THE NATIONAL COMMISSION FOR PUBLIC DEBATE, STRENGTHENING DEMOCRATIC DEBATE AND TRANSPARENCY

– Strengthening democratic processes on mining issues

It seems necessary to strengthen the democratic process as part of the implementation of national mining regulations, but also for each project. This could begin with an awareness-raising campaign to explain the essential role of minerals and CRMs in the energy transition.

The consultations carried out for the EMILI mining project should be formalized for all mining projects. Referral to the CNDP should be compulsory for all new mine openings or any other industrial projects. This would mean going back on the government's simplification action plan, which proposes removing industrial projects from the CNDP's remit[57]. Apart from the consequences that this reform could have on environmental law, the work of the CNDP is essential to enable inclusive consultations of the populations concerned, to involve them in the debate and consequently to facilitate acceptance of the projects.

While the consultation processes established for the EMILI mining project are considered exemplary, they do not reflect the national decision-making processes relating to the mine. One of the criticisms levelled at the French regulations concerns the lack of deliberation that accompanied their adoption[58]. The mining code was reformed in 2022 through orders and decrees. The law was simply enacted via the so-called "Climate and Resilience" Act.[59]

In this sense, the decision to make the Imerys mine a project of major national interest will have reinforced this feeling of a lack of debate. Worse still, it will have had a negative impact on other projects that have obtained this status (such as the Holo-Solis and CARBON photovoltaic panel gigafactories), which are accused of being "The potential environmental impact is extremely limited compared to this mine.[60]

This could consist of a series of meetings involving various stakeholders to improve information sharing, facilitate dialogue and possibly lead to a national Citizens' Convention along the lines of those already organized on the climate or the end of life, or regional and local conventions. These initiatives would address issues such as the need for CRMs to accelerate decarbonization, transport developments, European energy sovereignty, just transitions and the acceptability of mining.

57 Ministry for the Economy, Finance and Industrial and Digital Sovereignty (2024) *Action plan: simplification!* 24 April, p. 54, available at https://presse.economie.gouv.fr/plan-daction-simplification/

58 Criticism levelled by an NGO manager during an interview in June 2024.

59 Ministère de la Transition écologique et de la cohésion des territoires (2023) *Réforme du code minier : intégration des travaux miniers dans l'autorisation environnementale, servitudes d'utilité publique, garanties financières et police résiduelle*, 18 april, available at https://www.ecologie.gouv.fr/sites/default/files/documents/Mardi_DGPR_18%20avril%202023_r%C3%A9forme%20code%20minier.pdf

60 See "Gabriel Attal se dépêche de passer des décrets anti-écologiques", *Reporterre*, 10 July 2024, available at https://reporterre.net/Gabriel-Attal-se-depeche-de-passer-des-decrets-anti-ecologiques. Personally, we were able to measure the impact of the article on social networks, which are suddenly very critical of gigafactory projects.

– Wherever possible, improve the production, quality and access to information

The issue of access to reliable data, which is essential for a better understanding of national needs, promoting transparency and thus enabling better-informed debates, is crucial. **Apart from the scenarios mentioned in this study, there is little or no assessment of the increase in French demand or of the impact of the policies in place to meet it.** It should also be noted that the ADEME scenario focuses on the energy transition in general and not specifically on the increase in metal consumption in France. The increase in demand for uses unrelated to the energy transition is also not very visible, at least in the work cited. Experts are skeptical about some of the existing international scenarios[61]. However, improving data production and transparency poses many challenges: in addition to the traditional difficulties associated with the foresight exercise, some information is not intended to be made public because of its strategic and therefore sensitive nature. The creation of a European observatory for CRMs, based for example on the OFREMI model but with prerogatives extended to the production of European and global scenarios, could improve the quality of national and European data and also ensure better coordination of national policies[62]. BRGM, which has unique expertise, could also be strengthened.

At the local level, the aim would be to improve information on the impact of the mine, for example by monitoring the health of the population and the flora and fauna, as well as the influence of the opening of the mine on land values.

The IRMA Standard, developed jointly by the mining industry, finance, downstream industries, NGOs, local communities and trade unions, provides a rigorous and internationally recognized framework for consultation and transparency, which public authorities could draw on.

I INTRODUCE BUDGETARY AND NON-BUDGETARY MEASURES TO STRENGTHEN THE COMPETITIVENESS OF FRENCH AND EUROPEAN INDUSTRIES

Strengthening European industry is at the heart of current thinking and the subject of the Draghi report. The industrial sectors linked to CRMs need to strengthen their competitiveness in the face of their competitors, mainly Chinese, who are already far ahead in terms of technology (see the setbacks of the European steel manufacturers).

European battery manufacturers mentioned above). This strengthening should be achieved through financial support, in particular, to promote innovation to accelerate Europe's technological catch-up, as suggested by the Draghi report.[63]

However, as a country like France suffers from a lack of budgetary flexibility, such support could also be provided through several types of non-budgetary measures:

- In terms of transparency, the battery passport provided for in European regulations from 2027 could be extended to other decarbonization technologies,

- Public procurement: non-price criteria (environmental and social impacts, etc.) should be introduced as part of calls for tender, to encourage local products,

61 On two occasions during interviews conducted in the summer of 2024, data from the International Energy Agency was presented as unreliable.
62 See Defard C. and Voïta T. (2024) "Strengthening EU green sovereignty through the Critical Raw Materials Act", *op. cit.*
63 Draghi M. (2024) *The Future of Competitiveness*, *op. cit.*

- In terms of labelling, an index could be introduced to better value CRMs with a low carbon footprint.

ACCELERATE THE IMPLEMENTATION OF POLICIES AIMED AT REDUCING FRENCH NEEDS

The Varin Report seems to focus on increasing supply: the elements made public deal little with the subject of demand. However, demand should be at the heart of reducing France's dependence on CRMs, in particular by looking at uses and improving recycling policies:

– Strengthen existing legislation on the circular economy and recycling, for example, by limiting the export of European waste for treatment abroad.

The most optimistic observers believe that recycling could very soon make it possible to reach a mining peak for CRMs[64]. Recycling could thus enable Europe and France to free themselves from foreign dependence, by taking advantage of CRMs already present in the country. However, industrial capacity - for copper refining, for example - is still low, forcing France to export the copper it collects to Germany, Belgium and Spain. In addition, recycling is not without environmental impacts (although these are generally limited compared with the process of manufacturing new CRMs)[65]. The European objective is for recycling to produce at least 15% of its annual consumption of CRMs by 2030[66]. In April 2024, France amended its regulations on the principle of extended producer responsibility, particularly for batteries.

This makes it easier to recover batteries at the end of their life[67]. Innovative companies have also sprung up with government support, such as MagREEsource, which focuses on the recycling of rare earths, including the manufacture of permanent magnets for the wind turbine market, and inaugurated its first plant in July 2024, to produce 1,000 tons and meet 10% of European demand[68].

However, the new sector could be weakened by the fact that products tend to leave the continent to be recycled outside Europe, and by technical and technological difficulties. It seems important to ensure that this type of waste remains in Europe for treatment, particularly waste from electric vehicle batteries, known as "black mass", which includes lithium, copper, manganese, cobalt and nickel[69]. Restrictions or even bans should be imposed on the export of certain wastes containing CRMs, via the European Waste Framework Directive or new regulations. The possibility of restricting exports is also advocated by the European Recycling Industries Confederation

64 "Most electric-car batteries could soon be made by recycling old ones", *The Economist*, 19 September 2024, available at https://www.economist.com/science-and-technology/2024/09/19/most-electric-car-batteries-could-soon-be-made-by-recycling-old-ones

65 ADEME (2024) *Bilan national du reyclage 2021 - 2021*, March, available at https://www.actu-environnement.com/media/pdf/news-43668-bilan-recyclage-2021.pdf

66 *Regulation of the European Parliament and of the Council establishing a framework for ensuring a secure and sustainable supply of critical raw materials and amending Regulations (EU) 168/2013, (EU) 2018/858, 2018/1724 and (EU) 2019/102*0, eur-lex.Europa, 2023, 2023, available on https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52023PC0160&from=EN

67 "Article L542-10" of the French *Environment Code*, Légifrance, amended by law no. 2024-364 of 22 April 2024, art. 15 available at https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52023PC0160&from=EN

68 Interview and "MagREEsource reinvents a European permanent magnet industry", Grenoble INP - UGA, 15 December 2023, available at https://www.grenoble-inp.fr/fr/recherche-valorisation/magreesource-reinvente-une-filiere-europeenne-daimants-permanents

69 "EU urged to restrict export of black mass from used electic vehicles", *Euractiv*, 26 September 2023, available at https://www.euractiv.com/section/circular-materials/news/eu-urged-to-restrict-export-of-black-mass-from-used-electric-vehicles/

(EuRIC), Transport & Environment and the European Battery Industry Association (Eurobat)[70]. End-of-life batteries and black mass could also be reclassified as hazardous waste, which would prevent them from leaving the EU[71].

– Introduce a concept of eco-conditionality linked to the end use of CRMs in support of industries linked to CRMs.

To promote a more reasoned and sober use of the CRMs produced, it might be appropriate to introduce eco-conditionality measures in the context of industry support. This would involve applying the principle whereby "public support is granted in exchange for certain actions on the part of its beneficiaries"[72]. For example, the authorization of new mines or support for battery gigafactories could be made conditional on priority being given to the use of these products in electrically-assisted bicycles, public transport vehicles or light saloon cars, rather than SUVs. Such measures could be incorporated into the ecological bonus granted for the purchase of new vehicles.[73]

– Launch a debate on the use of CRMs and promoting sobriety

Many studies agree on the need to rethink our consumption patterns. In the ADEME scenarios mentioned above, option 1 "Generation frugal" is the one that most limits exposure to risks (without, however, eliminating it). This scenario implies a 26% reduction in distances travelled by 2050, and suggests that "cars will gradually become electrified to cover 90% of uses, they will become lighter and their speed will drop (e.g. 110 km/h on motorways). At the same time, car-sharing and hitchhiking are developing in rural areas"[74]. The report by the Institut Mobilités en Transition (IMT), WWF and EY also stresses the "dead end" represented by SUVs, pointing out that certain large vehicles such as those manufactured by Tesla, Audi or Peugeot consume 3 to 5 times more CRMs than a small vehicle. The CRMs used to produce a large SUV could therefore be used to make the batteries for 5 small electric city cars, 16 mini cars or 250 electrically-assisted bicycles[75]. The IFRI study[76] makes a similar observation.

Some of these recommendations have already been put forward as part of the proposals for the Citizens' Climate Convention in 2019[77]. Lastly, the French think tank negaWatt is also calling for "shorter distances travelled, modal shift, the development of car-sharing, limiting the range of vehicles, and reducing the size and weight of vehicles", as well as the development of other motorizations, such as bio-GNV (natural gas for vehicles)[78]. In 2024, negaWatt is also pursuing a reflection on these

70 *Ibid.*
71 Gianvincenzi, Mattia, Enrico Maria Mosconi, Marco Marconi, and Francesco Tola (2024) "Battery Waste Management in Europe: Black Mass Hazardousness and Recycling Strategies in the Light of an Evolving Competitive Regulation" *Recycling 9*, no. 1: 13. https://doi.org/10.3390/recycling9010013
72 Translated from Mazzucato, M. and Rodrik, D. (2023). Industrial Policy with Conditionalities: A Taxonomy and Sample Cases. UCL Institute for Innovation and Public Purpose, Working Paper Series (IIPP WP 2023-07). Available at: https://www.ucl.ac.uk/bartlett/public-purpose/wp2023-07
73 See https://www.service-public.fr/particuliers/vosdroits/F36844
74 Transition(s) 2050: Choosing now. Acting for the climate. Synthèse. New edition 2024, ADEME, 2024, *op. cit.*
75 WWF, IMT, EY (2023) "Métaux critiques : l'impasse des SUV. Quel scénario pour réussir la transition de nos mobilités ?", 9 November, *op. cit.*
76 Eyl-Mazzega M-A, Gherasim D-P, et al (2023) "Comment gagner le pari industriel de la mobilité électrique en France et en Europe", *op. cit.*
77 Citizens' Climate Convention (2020), *Getting around* section, available at https://propositions.conventioncitoyennepourleclimat.fr/se-deplacer-2/
78 Association negaWatt (2023) "Lithium: vers une indispensable sobriété", Note d'Analyse, February, available at https://www.negawatt.org/IMG/pdf/221104_note_lithium.pdf

issues with a new initiative, Minimal[79]. A return to an average vehicle weight close to that of 1990 (less than 1,000 kg compared with more than 1,230 kg today) should be envisaged[80]. It should be noted that the prioritization of uses, by taking into account the needs of the most disadvantaged populations, could indirectly strengthen the social acceptability of certain industrial and mining projects.

Finally, these measures could be complemented by studies on promoting metal substitution and eco-design, through research, incentives or awareness-raising campaigns.

I PROMOTE EUROPEAN COOPERATION

The Varin report seems to leave a number of questions unanswered in terms of articulation with European initiatives comparable to those it recommends: how will the French CRMs fund work with its German and Italian equivalents (if confirmed)? How will the bilateral agreements signed as part of France's CRMs diplomacy tie in with the strategic partnerships signed under the CRMA, or the agreements of other European countries? Is there a risk of competition between European countries? In other words, through the initiatives in the Varin report, is France acting as a forerunner, pre-empting the CRMA and encouraging its European neighbors to develop their institutions to ensure the safety of CRMs? or is it acting on its own, putting its national interests first, with no consideration for European cooperation[81]?

France should take advantage of its status as a first player in several areas (BRGM, OFREMI, creation of the fund managed by InfraVia, international partnerships) to accelerate European ambitions and cooperation on the subject of CRMs. This could be achieved in particular through:

- Greater cooperation between the various national funds and European initiatives (such as those led by the European Investment Bank[82]) within the framework of an extended budget, as suggested by France,[83]

- Ensuring that the international partnerships forged by France on CRMs issues are properly coordinated with those signed by the EU, so as to ensure that they are complementary and do not give rise to several parallel metal diplomas in Europe,

- French support for building on the momentum created by the adoption of the CRMA under the new European Commission, for example by incorporating the issue of CRMs into the European taxonomy and making it a pillar of the new clean industrial deal announced in Ursula von der Leyen's programme for her re-election as head of the Commission.[84]

79 See the web page: https://www.negawatt.org/Minimal-plus-de-sobriete-pour-moins-d-extraction-miniere

80 Figures taken from ADEME, *Car labelling*, "Evolution de la masse moyenne", available at https://car-labelling.ademe.fr/chiffrescles/r/evolutionMasseMoyenne

81 This criticism was heard during an interview with a private player in July 2024.

82 See Defard C. and Voïta T. (2024) "Strengthening EU green sovereignty through the Critical Raw Materials Act", *op. cit*

83 Macron E. (2024), *Speech on Europe*, 24 April, Elysée Palace, available at https://www.elysee.fr/emmanuel-macron/2024/04/24/discours-sur-leurope

84 Ursula von der Leyen (2024) *Europe's Choice. Political Guidelines for the Next European Commission 2024 - 2029*, available at https://commission.europa.eu/document/download/e6cd4328-673c-4e7a-8683-f63ffb2cf648_en?filename=Political%20Guidelines%202024-2029_EN.pdf

STRENGTHEN ESG REQUIREMENTS FOR DOMESTIC PROJECTS AND STRATEGIC PARTNERSHIPS

In order to prevent conflicts and guarantee sustainable development in the territories concerned. Respect for fundamental human rights, in particular the right to FPIC of Indigenous Peoples, must become a central element of these policies for opening or supporting mines or metallurgical plants. In addition, the adoption of IRMA standards should be encouraged. For example, the Eramet Group has used IRMA to assess its corporate social responsibility (CSR) performance[85].

85 "Emerat accelerates its CSR commitment with the launch of its first audit by the Initiative for Responsible Mining Assurance", Eramet, Press release, 11 May 2023, available on https://www.eramet.com/fr/news/2023/05/eramet-accelere-son-engagement-rse-avec-le-lancement-de-son-premier-audit-par-linitiative-for-responsible-mining-assurance/

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This project is funded by the European Commission's Citizens, Equality, Rights and Values Programme (CERV) under project number 101104850 – IJD 2024.