

## References

### Introduction

IEA (International Energy Agency) (2021), How global electric car sales defied Covid-19 in 2020, <https://www.iea.org/commentaries/how-global-electric-car-sales-defied-covid-19-in-2020>

IEA (2020), *Renewables 2021*, <https://www.iea.org/reports/renewables-2020>

### Key findings

Adamas Intelligence (2020), Rare earth magnet market outlook to 2030, Adamas Intelligence, Ontario, Canada.

Argonne National Laboratory (2020), *GREET 2020*, <https://greet.es.anl.gov/>

Argonne National Laboratory (2019), *GREET 2019*, <https://greet.es.anl.gov/>

IEA (International Energy Agency) (2020a), *World Energy Outlook 2020*, <https://www.iea.org/reports/world-energy-outlook-2020>

IEA (2020b), *Global Electric Vehicle Outlook 2020*, <https://www.iea.org/reports/global-ev-outlook-2020>

Kelly, J.C., Dai, Q. and Wang, M. (2020) Globally regional life cycle analysis of automotive lithium-ion nickel manganese cobalt batteries, *Mitigation and Adaptation Strategies for Global Change* 25, 371–396, <https://doi.org/10.1007/s11027-019-09869-2>

Marx, J. et al. (2018), Comparative Life Cycle Assessment of NdFeB Permanent Magnet Production from Different Rare Earth Deposits, *ACS Sustainable Chemistry and Engineering*, 6(5), 5858–5867, <https://doi.org/10.1021/acssuschemeng.7b04165>

Rio Tinto (2020), *Our approach to climate change 2019*, London, United Kingdom.

S&P Global (2021), New lithium supply chains could slash sector emissions by nearly a third, <https://www.spglobal.com/platts/en/market-insights/latest-news/coal/121120-new-lithium-supply-chains-could-slash-sector-emissions-by-nearly-a-third-roskill>

USGS (United States Geological Survey) (2021), *Mineral Commodity Summaries 2021*, USGS, Boulder, Colorado.

World Bureau of Metal Statistics (2020), *World Metal Statistics Yearbook 2020*, Herts, United Kingdom.

## Chapter 1: The state of play

Adamas Intelligence (2020), Rare earth magnet market outlook to 2030, Adamas Intelligence, Ontario, Canada.

Eurometaux (2019), *Metals for a Climate Neutral Europe: A 2050 Blueprint*, <https://eurometaux.eu/media/2005/full-report-8-56-17.pdf>

Hastings-Simon and Bazilian (2020), *Critical Minerals Don't Burn Up: Why The Energy Security Playbook Needs A Re-Write*, <https://www.globalpolicyjournal.com/blog/23/07/2020/critical-minerals-dont-burn-why-energy-security-playbook-needs-re-write>

Henckens (2021), Scarce mineral resources: Extraction, consumption and limits of sustainability, *Resources, Conservation and Recycling*, Volume 169, <https://doi.org/10.1016/j.resconrec.2021.105511>

IEA (International Energy Agency) (2021a), *Global EV Outlook 2021*, <https://www.iea.org/reports/global-ev-outlook-2021>

IEA (2021b), *Global Energy Review: CO2 Emissions in 2020*, <https://www.iea.org/articles/global-energy-review-co2-emissions-in-2020>

IEA (2020a), *World Energy Outlook 2020*, <https://www.iea.org/reports/world-energy-outlook-2020>

IEA (2020b), Clean energy progress after the Covid-19 crisis will need reliable supplies of critical minerals,

<https://www.iea.org/articles/clean-energy-progress-after-the-covid-19-crisis-will-need-reliable-supplies-of-critical-minerals>

OECD (Organisation for Economic Co-operation and Development) (2019), *Global material resources outlook to 2060*, OECD, Paris, <https://www.oecd.org/environment/global-material-resources-outlook-to-2060-9789264307452-en.htm>

Sverdrup and Ragnarsdottir (2016), A system dynamics model for platinum group metal supply, market price, depletion of extractable amounts, ore grade, recycling and stocks-in-use, *Resources, Conservation and Recycling*, Volume 114, <https://doi.org/10.1016/j.resconrec.2016.07.011>

S&P Global (2021), *S&P Global Market Intelligence Platform (database)*, accessed multiple times in November 2020 - March 2021.

UNEP (United Nations Environment Programme). (2011). *Recycling rates of metals: a status report*, UNEP, Nairobi.

USGS (United States Geological Survey) (2021), *Mineral Commodity Summaries 2021*, USGS, Boulder, Colorado.

World Bank (2020), *Minerals for Climate Action: The Mineral Intensity of the Clean Energy Transition*, World Bank, Washington, DC, <https://pubdocs.worldbank.org/en/961711588875536384/Minerals->

[for-Climate-Action-The-Mineral-Intensity-of-the-Clean-Energy-Transition](#)

World Bureau of Metal Statistics (2020), *World Metal Statistics Yearbook 2020*, Herts, United Kingdom.

## Chapter 2: Mineral requirements for clean energy transitions

Adamas Intelligence (2021a), *EV Battery Capacity and Battery Metals Tracker*, Adamas Intelligence, Ontario, Canada.

Adamas Intelligence (2021b), *EV Motor Materials Monthly*, Adamas Intelligence, Ontario, Canada.

Agamloh, E., von Jouanne, A., and Yokochi, A. (2020), An overview of electric machine trends in modern electric vehicles, *Machines*, 8(2), <https://doi.org/10.3390/MACHINES8020020>

Argonne National Laboratory (2020a), *BatPaC Model Software*, <https://www.anl.gov/cse/batpac-model-software>

Argonne National Laboratory (2020b), *GREET 2020*, <https://greet.es.anl.gov/>

Ashby, M. F. (2013), Materials for low-carbon power, In *Materials and the Environment* (2nd ed., pp. 349–413), <https://doi.org/10.1016/b978-0-12-385971-6.00012-9>

Ballinger, B. et al. (2019), The vulnerability of electric vehicle deployment to critical mineral supply, *Applied Energy*, 255, 113844, <https://doi.org/10.1016/j.apenergy.2019.113844>

Barei, K. et al. (2019), Life cycle assessment of hydrogen from proton exchange membrane water electrolysis in future energy systems, *Applied Energy*, 237, 862–872, <https://doi.org/10.1016/j.apenergy.2019.01.001>

Bellini, E. (2020), Vanadium redox flow battery goes online in Spain. *PV Magazine*, <https://www.pv-magazine.com/2020/12/17/vanadium-redox-flow-battery-goes-online-in-spain/>

Bleicher, A. (2010), Thin-Film Trick Makes Gallium Arsenide Devices Cheap, *IEEE Spectrum*, <https://spectrum.ieee.org/semiconductors/materials/thinfilm-trick-makes-gallium-arsenide-devices-cheap>

BloombergNEF (2020), 2020 Lithium-Ion Battery Price Survey.

BloombergNEF (2021), 1H 2021 Energy Storage Market Outlook.

Campbell, P. (2021), GM aims to end petrol and diesel sales by 2035, *Financial Times*, <https://www.ft.com/content/ea49d8cc-0e40-4dcd-ab60-0decc7146f5a>

Cui, H., Hall, D. and Lutsey, N. (2020), Update on the global transition to electric vehicles through 2019, *International Council on*

*Clean Transportation*, <https://theicct.org/publications/update-global-ev-transition-2019>

Ding, Y. et al. (2019), Automotive Li-Ion Batteries: Current Status and Future Perspectives, *Electrochemical Energy Reviews*, 2(1), 1-28, <https://doi.org/10.1007/s41918-018-0022-z>

EC JRC (Joint Research Center), (2011), *Critical Metals in Strategic Energy Technologies*, <https://doi.org/10.2790/35716>

Elia, A. et al. (2020), Wind turbine cost reduction: A detailed bottom-up analysis of innovation drivers, *Energy Policy*, 147 (October), <https://doi.org/10.1016/j.enpol.2020.111912>

EV-Volumes. (2021), *EV Data Center*, <https://www.ev-volumes.com/datacenter/>

Fishman, T. et al. (2018), Implications of emerging vehicle technologies on rare earth supply and demand in the US, *Resources*, 7(1), 1–15. <https://doi.org/10.3390/resources7010009>

Fraunhofer ISE (2020), *Photovoltaics Report*, <https://www.ise.fraunhofer.de/content/dam/ise/de/documents/publications/studies/Photovoltaics-Report.pdf>

Fuel Cells and Hydrogen Joint Undertaking (2018), *Addendum to the Multi-Annual Work Plan 2014-2020*, <https://www.fch.europa.eu/sites/default/files/MAWP%20final%20ver>

[sion\\_endorsed%20GB%2015062018%20%28ID%203712421%29.pdf](https://www.fch.europa.eu/sites/default/files/MAWP%20final%20ver)

General Office of the State Council of the People's Republic of China (2020), *New Energy Automobile Industry Development Plan 2020-2035*, [http://www.gov.cn/zhengce/content/2020-11/02/content\\_5556716.htm](http://www.gov.cn/zhengce/content/2020-11/02/content_5556716.htm)

Hall, D. et al. (2020), Electric vehicle capitals: Cities aim for all-electric mobility, *International Council on Clean Transportation*, September, <https://theicct.org/publications/update-global-ev-transition-2019>

Hendricks, C. et al. (2015), A failure modes, mechanisms, and effects analysis (FMMEA) of lithium-ion batteries, *Journal of Power Sources*, 297, 113–120, <https://doi.org/10.1016/j.jpowsour.2015.07.100>

Hess, S., Wohlfahrt-Mehrens, M., and Wachtler, M. (2015), Flammability of Li-Ion Battery Electrolytes: Flash Point and Self-Extinguishing Time Measurements, *Journal of The Electrochemical Society*, 162(2), A3084–A3097, <https://doi.org/10.1149/2.0121502jes>

Horowitz, K. et al. (2018), *A Techno-Economic Analysis and Cost Reduction Roadmap for III-V Solar Cells*, <https://www.nrel.gov/docs/fy19osti/72103.pdf>

- IEA (2021), *Global EV Outlook 2021*, <https://www.iea.org/reports/global-ev-outlook-2021>
- IEA (2020a), *Energy Storage*, Tracking Clean Energy Progress, <https://www.iea.org/reports/energy-storage>
- IEA (2020b), *Global EV Outlook 2020*, <https://www.iea.org/reports/global-ev-outlook-2020>
- IEA (2020c), *World Energy Outlook 2020*, <https://www.iea.org/reports/world-energy-outlook-2020>
- IRENA (International Renewable Energy Agency) (2019), *Renewable Power Generation Costs in 2018*, <https://www.irena.org/publications/2019/May/Renewable-power-generation-costs-in-2018>
- IRENA (2016), *End of Life Management Solar PV Panels*, <https://www.irena.org/publications/2016/Jun/End-of-life-management-Solar-Photovoltaic-Panels>
- Irvine, M. and Rinaldo, M. (2020), *Tesla's Battery Day and the Energy Transition*, DNV, <https://www.dnv.com/feature/tesla-battery-day-energy-transition.html>
- ITRPV (2020), Results 2019 including maturity report 2020, <http://itrpv.vdma.org/documents/27094228/29066965/Readiness0ITRPV02020/2a8588fd-3ac2-d21d-2f83-b8f96be03e51>
- James, B. D. et al. (2018), *Mass Production Cost Estimation of Direct H2 PEM Fuel Cell Systems for Transportation Applications: 2018 Update*, <https://www.energy.gov/sites/prod/files/2019/12/f70/fcto-sa-2018-transportation-fuel-cell-cost-analysis.pdf>
- Janek, J. and Zeier, W. G. (2016), A solid future for battery development. *Nature Energy*, 1(9), 1–4, <https://doi.org/10.1038/nenergy.2016.141>
- Kane, M. (2021), SVOLT's Cobalt-free NMx Cell Are Now Available For Order, *InsideEVs*, <https://insideevs.com/news/483181/svolt-cobalt-free-nmx-cell-available-order/>
- Kiemel, S. et al. (2021), Critical materials for water electrolyzers at the example of the energy transition in Germany, *International Journal of Energy Research*, January, 1–22, <https://doi.org/10.1002/er.6487>
- Kim, H. S. et al. (2012), Lead iodide perovskite sensitized all-solid-state submicron thin film mesoscopic solar cell with efficiency exceeding 9%, *Scientific Reports*, 2(1), 1–7, <https://doi.org/10.1038/srep00591>
- Koj, J. C. et al. (2017), Site-dependent environmental impacts of industrial hydrogen production by alkaline water electrolysis, *Energies*, 10(7), <https://doi.org/10.3390/en10070860>

Lee, Y. G. et al. (2020), High-energy long-cycling all-solid-state lithium metal batteries enabled by silver–carbon composite anodes, *Nature Energy*, 5(4), 299–308, <https://doi.org/10.1038/s41560-020-0575-z>

Lundberg, S. (2019), *Comparative LCA of Electrolyzers for Hydrogen Gas Production*, <http://www.diva-portal.org/smash/get/diva2:1331089/FULLTEXT01.pdf>

McKinsey (2020), *McKinsey Electric Vehicle Index: Electric Vehicle Trends*, <https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/mckinsey-electric-vehicle-index-europe-cushions-a-global-plunge-in-ev-sales>

Nature Energy (2020), Perovskites take steps to industrialization, *Nature Energy*, 5(1), 1–1, <https://doi.org/10.1038/s41560-020-0552-6>

NEDO (2008), 燃料電池用白金代替触媒の研究開発動向 (R&D trends in platinum alternative catalysts for fuel cells), <https://www.nedo.go.jp/content/100105282.pdf>

Nishiyama, A. (2020), China to ban new gas-powered car sales by 2035 to meet 2060 pledge, *Asahi Shinbun*, <http://www.asahi.com/ajw/articles/13878544>

Nordelöf, A. et al. (2019), Life cycle assessment of permanent magnet electric traction motors, *Transportation Research Part D:*

*Transport and Environment*, 67, 263–274, <https://doi.org/10.1016/j.trd.2018.11.004>

NREL (National Renewable Energy Laboratory) (2019), *Best Research-Cell Efficiency Chart*, <https://www.nrel.gov/pv/cell-efficiency.html>

Nunez, C. (2020), Researchers eye manganese as key to safer, cheaper lithium-ion batteries, *Argonne National Laboratory*, <https://www.anl.gov/article/researchers-eye-manganese-as-key-to-safer-cheaper-lithiumion-batteries>

Pavel, C. C. et al. (2017), Role of substitution in mitigating the supply pressure of rare earths in electric road transport applications, *Sustainable Materials and Technologies*, 12, 62–72, <https://doi.org/10.1016/j.susmat.2017.01.003>

Pillot, C. (2019), *The Rechargeable Battery Market and Main Trends 2018-2030*, [https://www.bpifrance.fr/content/download/76854/831358/file/02\\_-\\_Presentation\\_Avicenne\\_-\\_Christophe\\_Pillot\\_-\\_28\\_Mai\\_2019.pdf](https://www.bpifrance.fr/content/download/76854/831358/file/02_-_Presentation_Avicenne_-_Christophe_Pillot_-_28_Mai_2019.pdf)

Pillot, C. (2017), *The Rechargeable Battery Market and Main Trends 2015-2025*, [http://www.avicenne.com/pdf/The%20Rechargeable%20Battery%20Market%20and%20Main%20Trends%202016-2025\\_C%20Pillot\\_M%20Sanders\\_September%202017.pdf](http://www.avicenne.com/pdf/The%20Rechargeable%20Battery%20Market%20and%20Main%20Trends%202016-2025_C%20Pillot_M%20Sanders_September%202017.pdf)

Placke, T. et al. (2017), Lithium ion, lithium metal, and alternative rechargeable battery technologies: The odyssey for high energy density, *Journal of Solid State Electrochemistry*, 21(7), 1939–1964, <https://doi.org/10.1007/s10008-017-3610-7>

S&P Global (2021), Volkswagen's plan on LFP use shifts hydroxide dominance narrative in EV sector, <https://www.spglobal.com/platts/en/market-insights/latest-news/metals/031721-volkswagens-plan-on-lfp-use-shifts-hydroxide-dominance-narrative-in-ev-sector>

Saliba, M. et al. (2018), Perovskite Solar Cells: From the Atomic Level to Film Quality and Device Performance, *Angewandte Chemie - International Edition*, 57(10), 2554–2569, <https://doi.org/10.1002/anie.201703226>

Shirayama, M. et al. (2016), Degradation mechanism of CH<sub>3</sub>NH<sub>3</sub>PbI<sub>3</sub> perovskite materials upon exposure to humid air, *Journal of Applied Physics*, 119(11), 115501, <https://doi.org/10.1063/1.4943638>

Smolinka, T. et al. (2018), Industrialisierung der Wasser elektrolyse in Deutschland: Chancen und Herausforderungen für nachhaltigen Wasserstoff für Verkehr, Strom und Wärme (Industrialization of water electrolysis in Germany: opportunities and challenges for sustainable hydrogen for transport, electricity and heat), <https://www.now-gmbh.de/content/service/3-publikationen/1-nip->

[wasserstoff-und-brennstoffzellentechnologie/indwede-studie\\_v04.1.pdf](#)

Sprecher, B. et al. (2014), Life cycle inventory of the production of rare earths and the subsequent production of NdFeB rare earth permanent magnets, *Environmental Science and Technology*, 48(7), 3951–3958, <https://doi.org/10.1021/es404596q>

Times of India (2021), Switch-hit: Mass campaign to popularise electric vehicles in Delhi, <https://timesofindia.indiatimes.com/city/delhi/switch-hit-mass-campaign-to-popularise-e-vehicles/articleshow/80695293.cms>

US Department of Energy (2014), Manufacturing Cost Analysis of 1 kW and 5 kW Solid Oxide Fuel Cell (SOFC) for Auxilliary Power Applications, [https://www.energy.gov/sites/default/files/2014/06/f16/fcto\\_battelle\\_cost\\_analysis\\_apu\\_feb2014.pdf](https://www.energy.gov/sites/default/files/2014/06/f16/fcto_battelle_cost_analysis_apu_feb2014.pdf)

US Department of Energy (2015), *DOE Technical Targets for Polymer Electrolyte Membrane Fuel Cell Components*, <https://www.energy.gov/eere/fuelcells/doe-technical-targets-polymer-electrolyte-membrane-fuel-cell-components>

USGS (2021), *Mineral Commodity Summaries 2021*, <https://pubs.usgs.gov/periodicals/mcs2021/mcs2021.pdf>

Varzi, A. et al. (2016), Challenges and prospects of the role of solid electrolytes in the revitalization of lithium metal batteries, *Journal of*

*Materials Chemistry A*, 4(44), 17251–17259,

<https://doi.org/10.1039/c6ta07384k>

Wappelhorst, S. and Cui, H. (2020), Growing momentum: Global overview of government targets for phasing out sales of new internal combustion engine vehicles, ICCT,

<https://theicct.org/blog/staff/global-ice-phaseout-nov2020>

Watari, T. et al. (2019), Total material requirement for the global energy transition to 2050: A focus on transport and electricity,

*Resources, Conservation and Recycling*, 148, 91–103,

<https://doi.org/10.1016/j.resconrec.2019.05.015>

Widmer, J. D., Martin, R., and Kimiabeigi, M. (2015), Electric vehicle traction motors without rare earth magnets, *Sustainable Materials and Technologies*, 3, 7–13,

<https://doi.org/10.1016/j.susmat.2015.02.001>

Willuhn, M. (2020), Not just for outer space: NREL has a path to cheaper GaAs solar cells, *PV Magazine*, <https://pv-magazine-usa.com/2020/01/13/solar-cells-from-space-are-on-the-way/>

Wood, D. L., Li, J., and Daniel, C. (2015), Prospects for reducing the processing cost of lithium ion batteries, *Journal of Power Sources*, 275, 234–242,

<https://doi.org/10.1016/j.jpowsour.2014.11.019>

Zhao, Z. et al. (2017), Mixed-Organic-Cation Tin Iodide for Lead-Free Perovskite Solar Cells with an Efficiency of 8.12%, *Advanced Science*, 4(11), 1700204, <https://doi.org/10.1002/advs.201700204>

### Chapter 3: Reliable supply of minerals

Adamas Intelligence (2020), Rare earth magnet market outlook to 2030, Adamas Intelligence, Ontario, Canada.

Africa Oil & Power (2021), DRC announces extension on export ban moratorium for key minerals,

<https://www.africaoilandpower.com/2020/08/27/drc-announces-extension-on-export-ban-moratorium-for-key-minerals/>

Argonne National Laboratory (2020), *BatPaC Model Software*,

<https://www.anl.gov/cse/batpac-model-software>

Balaram, V. (2019), Rare earth elements: A review of applications, occurrence, exploration, analysis, recycling, and environmental impact, *Geoscience Frontiers*, 10,

<https://doi.org/10.1016/j.gsf.2018.12.005>

BHP (2011), *BHP Billiton Site Tour Presentation*, BHP, Melbourne, Australia.

Bio by Deloitte (2014), *Development of Guidance on Extended Producer Responsibility (EPR)*, European Commission,

[https://ec.europa.eu/environment/archives/waste/eu\\_guidance/pdf/report.pdf](https://ec.europa.eu/environment/archives/waste/eu_guidance/pdf/report.pdf)



BloombergNEF (2020a), Global Nickel Outlook 2020-2030.

BloombergNEF (2020b), Critical Minerals Primer: Rare Earths.

BloombergNEF (2019), Lithium-Ion Battery Recycling\_ 2 Million Tons by 2030.

China Briefing (2021), *China Tightens Control Over Management of Rare Earths*, <https://www.china-briefing.com/news/china-tightens-control-over-management-of-rare-earths/>

CSIS (Center for Strategic and International Studies) (2021), *The Geopolitics of Critical Minerals Supply Chains*, <https://www.csis.org/analysis/geopolitics-critical-minerals-supply-chains>

COCHILCO (Comisión Chilena del Cobre / Chilean Copper Commission) (2020), *YEARBOOK: COPPER AND OTHER MINERAL STATISTICS 2000-2019*, [https://www.cochilco.cl/\\_layouts/download.aspx?SourceUrl=/Lists/Anuario/Attachments/23/Anuario%20Final%202019%20-%202014ago2020.xlsx](https://www.cochilco.cl/_layouts/download.aspx?SourceUrl=/Lists/Anuario/Attachments/23/Anuario%20Final%202019%20-%202014ago2020.xlsx)

COCHILCO (2018), *Regulations and Social Receptivity about Impurities in Copper Raw Material Chilean situation at 2018*, <http://www.jogmec.go.jp/content/300358431.pdf>

CRU (2020a), *Water - a major disrupter to copper supply*, <https://www.crugroup.com/knowledge-and-insights/insights/2020/water-a-major-disrupter-to-copper-supply>

CRU (2020b), The Rare Earths “Basket Problem” is Intensifying, The 2020 Tech Metals Edition of The Assay, The Assay, Hong Kong.

DG Trade (Directorate General for Trade of the European Commission) (2021), EU files WTO panel request against illegal export restrictions by Indonesia on raw materials for stainless steel, [https://ec.europa.eu/commission/presscorner/detail/en/IP\\_21\\_105](https://ec.europa.eu/commission/presscorner/detail/en/IP_21_105)

DISER (Department of Industry, Science, Energy and Resources, Australian Government) (2021), *Resources Technology and Critical Minerals Processing National Manufacturing Priority road map*, <https://www.industry.gov.au/data-and-publications/resources-technology-and-critical-minerals-processing-national-manufacturing-priority-road-map>

EURACTIV (2020), EU to push new standards for ‘greenest’ car batteries on earth, <https://www.euractiv.com/section/energy-environment/news/eu-to-push-new-standards-for-greenest-car-batteries-on-earth/>

Eurometaux (2019), *Metals for a Climate Neutral Europe: A 2050 Blueprint*, <https://eurometaux.eu/media/2005/full-report-8-56-17.pdf>

European Commission (2020a), *Critical Raw Materials Resilience: Charting a Path towards greater Security and Sustainability*, <https://ec.europa.eu/docsroom/documents/42849>

European Commission (2020b), Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning batteries and waste batteries, repealing Directive 2006/66/EC and amending Regulation (EU) No 2019/1020, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020PC0798>

EUROSTAT (2020), Waste statistics – recycling of batteries and accumulators, [https://ec.europa.eu/eurostat/statistics-explained/index.php/Waste\\_statistics\\_-\\_recycling\\_of\\_batteries\\_and\\_accumulators#Recycling\\_of\\_batteries\\_and\\_accumulators](https://ec.europa.eu/eurostat/statistics-explained/index.php/Waste_statistics_-_recycling_of_batteries_and_accumulators#Recycling_of_batteries_and_accumulators)

Foreign Policy (2019), *Mining The Future: How China is set to Dominate the Next Industrial Revolution*, <https://foreignpolicy.com/2019/05/01/mining-the-future-china-critical-minerals-metals/>

Forsén, O. et al. (2017), Primary Copper Smelter and Refinery as a Recycling Plant: A System Integrated Approach to Estimate Secondary Raw Material Tolerance, *Recycling*, 2(4), 19, <https://doi.org/10.3390/recycling2040019>

Gaines, L. et al. (2018), Key issues for Li-ion battery recycling, *MRS Energy & Sustainability*, 5, E14, <https://doi.org/10.1557/mre.2018.13>.

Grant (2019), *Lithium (Extraction Technology) in 2025*, <https://static1.squarespace.com/static/5c9aa323c46f6d499a2ac1c5/t/5e4548755e51623210e6da82/1581598838742/Lithium+%28Extraction+Technology%29+in+2025.pdf>

Harper, G. et al. (2019), Recycling lithium-ion batteries from electric vehicles, *Nature*, 575, <https://doi.org/10.1038/s41586-019-1682-5>

Hatayama, H. and Tahara, K. (2018), Adopting an objective approach to criticality assessment: Learning from the past, *Resources Policy*, 55, <https://doi.org/10.1016/j.resourpol.2017.11.002>

Hawker, W. et al. (2014), A synergistic hydro- and pyro-metallurgical process for low-energy copper production, [https://www.researchgate.net/publication/290998079\\_A\\_synergistic\\_hydro-\\_and\\_pyro-metallurgical\\_process\\_for\\_low-energy\\_copper\\_production](https://www.researchgate.net/publication/290998079_A_synergistic_hydro-_and_pyro-metallurgical_process_for_low-energy_copper_production)

Hefferman, O. (2019), Deep-sea dilemma: Mining the ocean floor could solve mineral shortages – and lead to epic extinctions in some of the most remote ecosystems on Earth, *Nature*, 571, <https://media.nature.com/original/magazine-assets/d41586-019-02242-y/d41586-019-02242-y.pdf>

Henckens, M. L. and E. Worrell (2020), Reviewing the availability of copper and nickel for future generations. The balance between production growth, sustainability and recycling rates, *Journal of Cleaner Production*, 264, 121460,

<https://doi.org/10.1016/j.jclepro.2020.121460>

Henckens (2021), Scarce mineral resources: Extraction, consumption and limits of sustainability, *Resources, Conservation and Recycling*, Volume 169,

<https://doi.org/10.1016/j.resconrec.2021.105511>

IAI (International Aluminium Institute) (2020), *Aluminium Recycling*,

[https://www.world-aluminium.org/media/filer\\_public/2020/10/20/wa\\_factsheet\\_final.pdf](https://www.world-aluminium.org/media/filer_public/2020/10/20/wa_factsheet_final.pdf)

IEA (International Energy Agency) (2020), *CO<sub>2</sub> Emissions from Fuel Combustion: Overview*, <https://www.iea.org/reports/co2-emissions-from-fuel-combustion-overview>

<https://www.iea.org/reports/co2-emissions-from-fuel-combustion-overview>

IRENA (International Renewable Energy Agency) (2019), *A New World: The Geopolitics of the Energy Transformation*,

<https://www.irena.org/publications/2019/Jan/A-New-World-The-Geopolitics-of-the-Energy-Transformation>

IRP (International Resource Panel) (2020), *Mineral Resource Governance in the 21st Century: Gearing extractive industries towards sustainable development*, United Nations Environment Programme,

<https://www.resourcepanel.org/reports/mineral-resource-governance-21st-century>

IUPAC (International Union of Pure and Applied Chemistry) (2005), *Nomenclature of Inorganic Chemistry, IUPAC Recommendations 2005*, [https://iupac.org/wp-](https://iupac.org/wp-content/uploads/2016/07/Red_Book_2005.pdf)

[content/uploads/2016/07/Red\\_Book\\_2005.pdf](https://iupac.org/wp-content/uploads/2016/07/Red_Book_2005.pdf)

JOGMEC (Japan Oil, Gas and Metals National Corporation) (2020), *Final Report of Analysis on Rare Earth Supply Chains in North America*,

[http://mric.jogmec.go.jp/wp-](http://mric.jogmec.go.jp/wp-content/uploads/2020/05/ree_supply_northamerica20200228.pdf)  
[content/uploads/2020/05/ree\\_supply\\_northamerica20200228.pdf](http://mric.jogmec.go.jp/wp-content/uploads/2020/05/ree_supply_northamerica20200228.pdf)

JOGMEC (2019a), Summary of lithium production technology – current situation and future outlook, *JOGMEC Mineral Resource Report*, 19-03 (48),

[http://mric.jogmec.go.jp/wp-](http://mric.jogmec.go.jp/wp-content/uploads/2019/03/mr201903_03.pdf)  
[content/uploads/2019/03/mr201903\\_03.pdf](http://mric.jogmec.go.jp/wp-content/uploads/2019/03/mr201903_03.pdf).

JOGMEC (2019b), Trends of cobalt production technology, *JOGMEC Mineral Resource Report*, 19-05 (49),

[http://mric.jogmec.go.jp/wp-](http://mric.jogmec.go.jp/wp-content/uploads/2019/04/mr201904_05.pdf)  
[content/uploads/2019/04/mr201904\\_05.pdf](http://mric.jogmec.go.jp/wp-content/uploads/2019/04/mr201904_05.pdf)

Kumar, A. et al. (2019), Lithium Recovery from Oil and Gas Produced Water: A Need for a Growing Energy Industry, *ACS Energy Lett.* 2019, 4, 6,

<https://doi.org/10.1021/acsenergylett.9b00779>

Lee, J. et al. (2020), Reviewing the material and metal security of low-carbon energy transitions, *Renewable and Sustainable Energy Reviews*, Volume 124,

<https://doi.org/10.1016/j.rser.2020.109789>

Liu, W. et al. (2019), Spatiotemporal patterns of lithium mining and environmental degradation in the Atacama Salt Flat, Chile, *International Journal of Applied Earth Observation and Geoinformation*, 80, <https://doi.org/10.1016/j.jag.2019.04.016>

Lutsey, N. and D. Hall (2018), Effects of battery manufacturing on electric vehicle life-cycle greenhouse gas emissions, [https://www.researchgate.net/publication/323118874\\_Effects\\_of\\_battery\\_manufacturing\\_on\\_electric\\_vehicle\\_life-cycle\\_greenhouse\\_gas\\_emissions](https://www.researchgate.net/publication/323118874_Effects_of_battery_manufacturing_on_electric_vehicle_life-cycle_greenhouse_gas_emissions)

Manuel (2017), Taconite dreams: The Struggle to Sustain Mining on Minnesota's Iron Range, 1915-2000, *Environmental History*, Volume 22, Issue 1, January 2017,

Messner (2002), Material substitution and path dependence: Empirical evidence on the substitution of copper for aluminium, *Ecological Economics*, Volume 42, Issues 1–2, August 2002,

METI (Ministry of Economy, Trade and Industry, Japan) (2017), World's First Success in Continuous Ore Lifting test for Seafloor Polymetallic Sulphides, METI, Tokyo, [https://www.meti.go.jp/english/press/2017/0926\\_004.html](https://www.meti.go.jp/english/press/2017/0926_004.html)

Mining Technology (2020), Trafigura announces end of artisanal cobalt formalisation project in Congo, <https://www.mining-technology.com/news/trafigura-announces-end-of-artisanal-cobalt-formalisation-project>

Ministry of Industry and Information Technology et al. (2018), *Provisional Regulation on the Recycling and Reuse of Traction Batteries from New Energy Vehicles (NEVs)*, [http://www.xinhuanet.com/english/2018-02/27/c\\_137001646.htm](http://www.xinhuanet.com/english/2018-02/27/c_137001646.htm)

Nicolli, F., Johnstone, F. and Söderholm, P. (2012), Resolving failures in recycling markets: The role of technological innovation. *Environmental Economics and Policy Studies*, 14, <https://doi.org/10.1007/s10018-012-0031-9>

Northvolt (2019), Revolt: The technologies paving the way for Li-ion battery recycling, <https://northvolt.com/stories/RevoltTechnologies>

NRCAN (Natural Resources Canada) (2020), Rare earth elements facts, <https://www.nrcan.gc.ca/our-natural-resources/minerals-mining/minerals-metals-facts/rare-earth-elements-facts/20522>

OECD (2014), *Creating Incentives for Greener Products Policy Manual for the Eastern Partnership Countries*, <https://www.oecd.org/environment/outreach/Creating%20Incentives%20for%20Greener%20Products.pdf>

Peelman, S. et al. (2016), Hydrometallurgical Extraction of Rare Earth Elements from Low Grade Mine Tailings, *Rare Metal Technology 2016*, Springer, Cham, [https://doi.org/10.1007/978-3-319-48135-7\\_2](https://doi.org/10.1007/978-3-319-48135-7_2)

Reuters (2021a), China rare earths extend surge on worries over Myanmar supply, inspection threat,

<https://www.reuters.com/article/us-china-rare-earths-myanmar-idUSKBN2BI1HR>

Reuters (2021b), Indonesia stays China's second-biggest nickel ore supplier despite export ban, <https://www.reuters.com/article/china-economy-trade-nickel-idUSL4N2JP36N>

Roskill (2021a), Nickel: Tsingshan to disrupt the nickel market again? <https://roskill.com/news/nickel-tsingshan-to-disrupt-the-nickel-market-again>

Roskill (2021b), Cobalt, sustainability: DRC launches monopoly over cobalt ASM to improve ESG credentials, <https://roskill.com/news/cobalt-sustainability-drc-launches-monopoly-over-cobalt-asm-to-improve-esg-credentials>

Rötzer, N. and Schmidt, M. (2018), Decreasing Metal Ore Grades: Is the Fear of Resource Depletion Justified? *Resources*, 7, 88.

Rüttinger et al. (2020), *Impacts of climate change on mining, related environmental risks and raw material supply*, <https://www.umweltbundesamt.de/en/publikationen/impacts-of-climate-change-on-mining-related>

S&P Global (2021), *S&P Global Market Intelligence Platform* (database), accessed multiple times in November 2020 - March 2021.

S&P Global (2020), Top mines average time from discovery to production: 16.9 years, S&P Global, New York.

S&P Global (2019a), Lithium supply is set to triple by 2025. Will it be enough? <https://www.spglobal.com/en/research-insights/articles/lithium-supply-is-set-to-triple-by-2025-will-it-be-enough>

S&P Global (2019b), ESG industry report card: Metals and mining, [https://www.spglobal.com/\\_media/documents/spglobalratings\\_esgin\\_dustryreportcardmetalsandmining\\_jun\\_03\\_2019-003-.pdf](https://www.spglobal.com/_media/documents/spglobalratings_esgin_dustryreportcardmetalsandmining_jun_03_2019-003-.pdf)

SAE International (2016), Automotive Battery Recycling Identification and Cross-Contamination Prevention, J3071\_201604.

Schippers A. et al. (2014), Biomining: Metal recovery from ores with microorganisms. *Adv Biochem Eng Biotechnol.*, 141:1-47, [https://doi.org/10.1007/10\\_2013\\_216](https://doi.org/10.1007/10_2013_216)

Schodde, R. (2017), Time delay between discovery and development – is it getting more difficult?, <https://minexconsulting.com/wp-content/uploads/2019/04/China-Mining-R-Schodde-Sept-2017.pdf>

Seabra, D. and Caldeira-Pires, A. (2020), Destruction mitigation of thermodynamic rarity by metal recycling. *Ecological Indicators*, 119, <https://doi.org/10.1016/j.ecolind.2020.106824>

Söderholm, P. and Ekvall, T., (2020), Metal markets and recycling policies: Impacts and challenges, *Mineral Economics*, 33, <https://doi.org/10.1007/s13563-019-00184-5>

Spooren, J. et al. (2020), Near-zero-waste processing of low-grade, complex primary ores and secondary raw materials in Europe: Technology development trends, *Resources, Conservation and Recycling*, 160, <https://doi.org/10.1016/j.resconrec.2020.104919>

STRADE (Strategic Dialogue on Sustainable Raw Materials for Europe) (2018), *Non-European Country Engagement with Resource-Rich Developing Countries*, [http://stradeproject.eu/fileadmin/user\\_upload/pdf/STRADE\\_Report\\_01\\_2018\\_Third\\_Country\\_Approaches\\_Min\\_Dev\\_Res\\_Rich.pdf](http://stradeproject.eu/fileadmin/user_upload/pdf/STRADE_Report_01_2018_Third_Country_Approaches_Min_Dev_Res_Rich.pdf)

Swedish Energy Agency (2019), State-of-the-art in reuse and recycling of lithium-ion batteries – A research review, <http://www.energimyndigheten.se/globalassets/forskning--innovation/overgripande/state-of-the-art-in-reuse-and-recycling-of-lithium-ion-batteries-2019.pdf>

The West Australian (2021), Rio Tinto reveals \$14.5m pilot plan to tap US waste rock for lithium riches, <https://thewest.com.au/business/mining/rio-tinto-reveals-145m-pilot-plan-to-tap-us-waste-rock-for-lithium-riches-nq-b881359859z>

Umicore (2018), BMW Group, Northvolt and Umicore join forces to develop sustainable life cycle loop for batteries, [https://www.umicore.com/en/newsroom/news/bmw-group-northvolt-](https://www.umicore.com/en/newsroom/news/bmw-group-northvolt-and-umicore-join-forces-to-develop-sustainable-life-cycle-loop-for-batteries/)

[and-umicore-join-forces-to-develop-sustainable-life-cycle-loop-for-batteries/](https://www.umicore.com/en/newsroom/news/bmw-group-northvolt-and-umicore-join-forces-to-develop-sustainable-life-cycle-loop-for-batteries/)

UNCTAD (United Nations Conference on Trade and Development) (2017), Using trade policy to drive value addition: Lessons from Indonesia's ban on nickel exports, [https://unctad.org/system/files/non-official-document/suc2017d8\\_en.pdf](https://unctad.org/system/files/non-official-document/suc2017d8_en.pdf)

UNEP (United Nations Environment Programme) (2011), *Recycling Rates of Metals – A Status Report*, <https://www.resourcepanel.org/reports/recycling-rates-metals>

UNEP (2013), Metal Recycling: Opportunities, Limits, Infrastructure, A Report of the Working Group on the Global Metal Flows to the International Resource Panel, <https://www.resourcepanel.org/reports/metal-recycling>

USABC (US Advanced Battery Consortium) (2014), Recommended practice for recycling of xEV electrochemical energy storage systems, <http://www.uscar.org/guest/teams/12/U-S-Advanced-Battery-Consortium-LLC>.

USGS (United States Geological Survey) (2021), *Mineral Commodity Summaries 2021*, USGS, Boulder, Colorado.

USGS (2020), *Mineral Commodity Summaries 2020*, USGS, Boulder, Colorado.

USGS (2013), *Metal Prices in the United States Through 2010*, USGS, Boulder, Colorado, <https://pubs.usgs.gov/sir/2012/5188>

WEF (World Economic Forum) (2020), The Global Battery Alliance Battery Passport: Giving an identity to the EV's most important component, [http://www3.weforum.org/docs/WEF\\_GBA\\_Battery\\_Passport\\_Overview\\_2021.pdf](http://www3.weforum.org/docs/WEF_GBA_Battery_Passport_Overview_2021.pdf)

World Bank (2020), *Worldwide Governance Indicators*, accessed in April 2021, <https://info.worldbank.org/governance/wgi>

World Bureau of Metal Statistics (2020), *World Metal Statistics Yearbook 2020*, Herts, United Kingdom.

WRI (World Resources Institute) (2019), *Aqueduct 3.0 dataset*, accessed in March 2021, <https://www.wri.org/publication/aqueduct-30>

WTO (World Trade Organization) (2015), *DS431: China — Measures Related to the Exportation of Rare Earths, Tungsten and Molybdenum*, [https://www.wto.org/english/tratop\\_e/dispu\\_e/cases\\_e/ds431\\_e.htm](https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds431_e.htm)

WWF (World Wide Fund for Nature) (2021), Brands Back Call for Moratorium on Deep Seabed Mining, [https://wwf.panda.org/wwf\\_news/press\\_releases/?1909966/Brands-Back-Call-for-Moratorium-on-Deep-Seabed-Mining](https://wwf.panda.org/wwf_news/press_releases/?1909966/Brands-Back-Call-for-Moratorium-on-Deep-Seabed-Mining)

Zhang, R. et al. (2020), Bioleaching of cobalt from Cu/Co-rich sulfidic mine tailings from the polymetallic Rammelsberg mine, Germany, *Hydrometallurgy*, 197, <https://doi.org/10.1016/j.hydromet.2020.105443>

## Chapter 4: Sustainable and responsible development of minerals

Accenture (2019), *Intelligent Technologies for Tailings Management* (web page), <https://www.accenture.com/us-en/blogs/chemicals-and-natural-resources-blog/intelligent-technologies-for-tailings-management>

Amnesty International (2016), *This is what we die for: Human Rights Abuses in the Democratic Republic of the Congo Power the Global Trade in Cobalt*, <https://www.amnesty.org/en/documents/afr62/3183/2016/en/>

Anglo American (2019), *Anglo American Partners ENGIE to Develop World's Largest Hydrogen-powered Mine Truck* (web page), <https://www.angloamerican.com/media/press-releases/2019/10-10-2019>

Argonne National Laboratory (2020), *GREET 2020*, <https://greet.es.anl.gov/>

Argonne National Laboratory (2019), *GREET 2019*, <https://greet.es.anl.gov/>

Australia Minerals (2021), *Mineral Resources Information*, <http://www.australiaminerals.gov.au/mineral-resources-information>

Azadi, M. et al. (2020), Transparency on greenhouse gas emissions from mining to enable climate change mitigation, *Nature Geoscience*, 13(2), 100–104, <https://doi.org/10.1038/s41561-020-0531-3>

BBC (2019), Brazil's dam disaster: Looking for bodies, looking for answers, [https://www.bbc.co.uk/news/resources/ids-sh/brazil\\_dam\\_disaster](https://www.bbc.co.uk/news/resources/ids-sh/brazil_dam_disaster)

BGR (Bundesanstalt für Geowissenschaften und Rohstoffe / Federal Institute for Geosciences and Natural Resources) (2019), Mapping of the Artisanal Copper-Cobalt Mining Sector in the Provinces of Haut-Katanga and Lualaba in the Democratic Republic of the Congo, [http://congominer.org/system/attachments/assets/000/001/659/original/BGR\\_%282019%29\\_Mapping\\_of\\_the\\_DRC\\_artisanal\\_copper-cobalt\\_sector\\_engl-min.pdf?1570629800](http://congominer.org/system/attachments/assets/000/001/659/original/BGR_%282019%29_Mapping_of_the_DRC_artisanal_copper-cobalt_sector_engl-min.pdf?1570629800)

BHP (2020), *Climate Change 2020: Carbon Disclosure Project*, p. 51. [https://www.bhp.com/-/media/documents/environment/2020/200928\\_bhpcdpresponseclimatechange2020.pdf?la=en](https://www.bhp.com/-/media/documents/environment/2020/200928_bhpcdpresponseclimatechange2020.pdf?la=en)

BloombergNEF (2020), Defining Sustainable Nickel for an EV Future.

Bronckers M., Gruni G. (2021), Retooling the sustainability standards in EU free trade agreements, *Journal of International Economic Law*,

<https://academic.oup.com/jiel/article/24/1/25/6146679>

Campbell, R. et al. (2017), *Dark Side of the Boom: What we Do and Don't Know about Mines, Closures and Rehabilitation*, Australia Institute, Canberra, <https://australiainstitute.org.au/wp-content/uploads/2020/12/P192-Dark-side-of-the-boom-web.pdf>

Carmo, F. F. do et al. (2017), Fundão tailings dam failures: the environment tragedy of the largest technological disaster of Brazilian mining in global context, *Perspectives in Ecology and Conservation*, <https://doi.org/10.1016/j.pecon.2017.06.002>

CCSI (Columbia Center on Sustainable Investment) (2018), *The Renewable Power of the Mine – Accelerating Renewable Energy Intergration*, <http://ccsi.columbia.edu/files/2018/12/3418-CCSI-RE-and-mining-report-09-lr-reduced-optimized-07-no-links.pdf>

Church of England (2020), *Investor Mining and Tailings Safety Initiative* (web page), <https://www.churchofengland.org/about/leadership-and-governance/church-england-pensions-board/old-pensions-board-investments-0>

Cochilco (Comisión Chilena del Cobre / Chilean Copper Commission) (2020), *Yearbook: Copper and Other Mineral Statistics 2000-2019*,



<https://www.cochilco.cl/layouts/download.aspx?SourceUrl=/Lists/Anuario/Attachments/23/Anuario%20Final%202019%20-%202014ago2020.xlsx>

Copper Alliance (2021), *Best Practices: Copper Mining, Water and the United Nations' SDGs*, <https://sustainablecopper.org/best-practices/copper-mining-water-and-the-united-nations-sdgs>

Cornwall, W. (2020), Catastrophic failures raise alarm about dams containing muddy mine wastes, *Science*, <http://doi:10.1126/science.abe3917>

Davies, R. et al. (2020), Lessons in climate risk reporting on the path to mandatory disclosure: A marathon, not a sprint (blog post), <https://www.dlapiper.com/fr/france/insights/publications/2020/12/lessons-climate-risk-mandatory-disclosure/>

Dong, D. et al. (2020), Assessing the future environmental impacts of copper production in China: Implications of the energy transition *Journal of Cleaner Production*, 274 (November 2020), 1–24, <https://doi.org/10.1016/j.jclepro.2020.122825>

Donoso, G. (2018), Overall assessment of Chile's water policy and its challenges, *Water Policy in Chile* (pp. 209-219), Springer, Cham.

Donoso, G., E. Lictevout and J. D. Rinaudo (2020), Groundwater management lessons from Chile, *Sustainable Groundwater Management* (pp. 481-509), Springer, Cham.

EC JRC (Joint Research Center) (2018), Best Available Techniques (BAT) Reference Document for the Management of Waste from Extractive Industries in accordance with Directive 2006/21/EC, <http://doi:10.2760/35297>

EGC (Entreprise Générale du Cobalt / General Cobalt Company) (2021), *EGC Responsible Sourcing Standard*, [https://www.trafigura.com/media/3098/2021\\_trafigura\\_egc\\_responsible\\_sourcing\\_standards\\_english.pdf](https://www.trafigura.com/media/3098/2021_trafigura_egc_responsible_sourcing_standards_english.pdf)

EITI (Extractives Industries Transparency Initiative) (2020a), *Progress Report*, [https://eiti.org/files/documents/eiti\\_progress\\_report\\_2020\\_english.pdf](https://eiti.org/files/documents/eiti_progress_report_2020_english.pdf)

EITI (2020b), *Board Decision on the Second Validation of Madagascar*, [https://eiti.org/scorecard-pdf?filter\[country\]=33&filter\[year\]=2019](https://eiti.org/scorecard-pdf?filter[country]=33&filter[year]=2019)

EITI (2018), *Establishment and Governance of Multi-stakeholder Groups: Guidance Note 14 – Requirement 1.4*, [https://eiti.org/files/documents/guidance\\_note\\_14\\_on\\_establishment\\_and\\_governance\\_of\\_msgs.pdf](https://eiti.org/files/documents/guidance_note_14_on_establishment_and_governance_of_msgs.pdf)

Energy Storage News (2020), European partnership targets 'zero carbon lithium' extraction in Germany, Energy Storage News, <https://www.energy-storage.news/news/european-partnership-targets-zero-carbon-lithium-extraction-in-germany>

Eurometaux (2019), *Metals for a Climate Neutral Europe: A 2050 Blueprint*, <https://eurometaux.eu/media/2005/full-report-8-56-17.pdf>

European Commission (2020), *Sustainable Development* (web page), <https://ec.europa.eu/trade/policy/policy-making/sustainable-development/>

European Parliament (2021), *Corporate Due Diligence and Corporate Accountability*, P9\_TA(2021)0073, [https://www.europarl.europa.eu/doceo/document/TA-9-2021-0073\\_EN.html](https://www.europarl.europa.eu/doceo/document/TA-9-2021-0073_EN.html)

Eurostat (2021), *Generation of Waste by Waste Category, Hazardousness and NACE Rev. 2 Activity [ENV\_WASGEN]* (database), [https://ec.europa.eu/eurostat/databrowser/view/ENV\\_WASGEN/default/table](https://ec.europa.eu/eurostat/databrowser/view/ENV_WASGEN/default/table), (accessed 23 February 2021).

EY (Ernst & Young) (2019), *Rapport de Reconciliation 2018: EITI-Madagascar (Reconciliation Report 2018: EITI-Madagascar)*, [https://eiti.org/files/documents/eiti\\_2018\\_-\\_rapport\\_final\\_du\\_13122019.pdf](https://eiti.org/files/documents/eiti_2018_-_rapport_final_du_13122019.pdf)

Faber, B. et al. (2017), *Artisanal Mining, Livelihoods, and Child Labor in the Cobalt Supply Chain of the Democratic Republic of Congo*, Center for Effective Global Action, [https://cega.berkeley.edu/assets/cega\\_research\\_projects/179/CEG A\\_Report\\_v2.pdf](https://cega.berkeley.edu/assets/cega_research_projects/179/CEG A_Report_v2.pdf)

Farjana, S. H., N. Huda and M. A. P. Mahmud (2019), Life cycle assessment of cobalt extraction process, *Journal of Sustainable Mining*, 18(3), 150–161, <https://doi.org/10.1016/j.jsm.2019.03.002>

Fernandes, G. W. et al. (2016), Deep into the mud: Ecological and socio-economic impacts of the dam breach in Mariana, Brazil, *Natureza & Conservação*, No 14, 35-45, <https://doi.org/10.1016/j.ncon.2016.10.003>

GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH / German Corporation for International Cooperation) (2020), *Sexual and Gender-Based Violence in the Mining Sector in Africa*, <https://www.kit.nl/wp-content/uploads/2020/09/SGBV-in-the-Mining-Sector-in-Africa.pdf>

GIZ (2016), *Assessing the Effectiveness and Impact of the Extractive Industries Transparency Initiative*, [https://eiti.org/files/documents/eiti\\_impact\\_study\\_giz\\_2016.pdf](https://eiti.org/files/documents/eiti_impact_study_giz_2016.pdf)

Glencore (2019), *Sustainability Report 2019*, <https://www.glencore.com/dam/jcr:31236b6f-34a4-432a-b4b3-6fe133488bb8/2019-Glencore-Sustainability-Report-.pdf>

Government of Canada (2021a), *A Healthy Environment and a Healthy Economy, Annex: Pricing Carbon Pollution*, <https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/climate-plan-overview/healthy-environment-healthy-economy/annex-pricing-carbon-pollution.html>

Government of Canada (2021b), *Canada Sets a World Standard for Sustainable Mining* (web page),

<https://www.tradecommissioner.gc.ca/canadexport/0003604.aspx?lang=eng>

Government of Canada (2020), *Regulatory Impact Analysis Statement*, Canada Gazette, Part I, Volume 154, Number 51: Clean Fuel Regulations, <https://canadagazette.gc.ca/rp-pr/p1/2020/2020-12-19/html/reg2-eng.html>

Government of Canada (2019), *Output-Based Pricing System Regulations: SOR/2019-266*, Canada Gazette, Part II, Volume 153, Number 14, <https://canadagazette.gc.ca/rp-pr/p2/2019/2019-07-10/html/sor-dors266-eng.html>

Gunson, A. et al. (2012), Reducing mine water requirements, *Journal of Cleaner Production* 21, 71–82, <https://doi.org/10.1016/j.jclepro.2011.08.020>

Gutierrez, M. (2020), Editorial for Special Issue “Sustainable use of abandoned mines”, *Minerals* 10, no. 11: 1015. <https://doi.org/10.3390/min10111015>

Holland, M. (2019), *Reducing the Health Risks of Copper, Rare Earth and Cobalt Industries: The Transition to a Low-carbon Economy*, OECD 2019 GGSD Forum: Greening heavy and extractive industries, [https://www.oecd.org/greengrowth/Reducing%20the%20health%20](https://www.oecd.org/greengrowth/Reducing%20the%20health%20risks%20of%20the%20copper,%20rare%20earth%20and%20cobalt%20industries.pdf)

[isks%20of%20the%20copper,%20rare%20earth%20and%20cobalt%20industries.pdf](https://www.oecd.org/greengrowth/Reducing%20the%20health%20risks%20of%20the%20copper,%20rare%20earth%20and%20cobalt%20industries.pdf)

Hong, J. et al. (2018), Life cycle assessment of copper production: a case study in China, *International Journal of Life Cycle Assessment*, 23(9), 1814–1824. <https://doi.org/10.1007/s11367-017-1405-9>

IEA (International Energy Agency) (2020a), *Global Electric Vehicle Outlook 2020*, <https://www.iea.org/reports/global-ev-outlook-2020>

IEA (2020b), *World Energy Outlook 2020*, <https://www.iea.org/reports/world-energy-outlook-2020>

IEA (2020c), *Iron and Steel Technology Roadmap*, <https://www.iea.org/reports/iron-and-steel-technology-roadmap>

IEA (2020d), *Gender Diversity in Energy: What We Know and What We Don't Know*, <https://www.iea.org/commentaries/gender-diversity-in-energy-what-we-know-and-what-we-dont-know>

IAEA (International Atomic Energy Agency) (2005), *Naturally Occurring Radioactive Materials (NORM IV)*, Proceedings of an international conference held in Szczyrk, Poland, 17-21 May 2004, IAEA, VIENNA, <https://www.iaea.org/publications/7384/naturally-occurring-radioactive-materials-norm-iv-proceedings-of-an-international-conference-held-in-szczyrk-poland-17-21-may-2004>

IBAMA (Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis / Brazilian Institute of the Environment and

Renewable Natural Resources) (2016), *Projeto Carajás S11D, no Pará, recebe Licença de Operação (Carajás S11D Project, in Pará, receives License to Operate)* (web page), <http://www.ibama.gov.br/noticias/58-2016/768-projeto-carajas-s11d-no-para-recebe-licenca-de-operacao-do-ibama>

ICAP (International Carbon Action Partnership) (2021), *Chile, ETS Detailed Information*, [https://icapcarbonaction.com/en/?option=com\\_etsmap&task=export&format=pdf&layout=list&systems\[\]=54#:~:text=In%20this%20content%2C%20a%20carbon,to%20combustion%20processes%20per%20year.](https://icapcarbonaction.com/en/?option=com_etsmap&task=export&format=pdf&layout=list&systems[]=54#:~:text=In%20this%20content%2C%20a%20carbon,to%20combustion%20processes%20per%20year.)

IGF (Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development) (2019), *Background Document: Legal Framework of Environmental and Social Impact Assessment in the Mining*, International Institute for Sustainable Development, <https://www.iisd.org/system/files/publications/igf-esia-background-en.pdf?q=sites/default/files/publications/igf-esia-background-en.pdf>

IGF (2018a), *State of Sustainability Initiatives, Standards and the Extractive Economy*, International Institute for Sustainable Development, <https://www.iisd.org/system/files/publications/igf-ssi-review-extractive-economy.pdf>

IGF (2018b). *Zambia: Upstream Linkages*, International Institute for Sustainable Development,

<https://www.iisd.org/sites/default/files/publications/case-study-zambia-upstream-linkages.pdf>

IGF (2018c), *Chile: Horizontal Linkages*, International Institute for Sustainable Development, <https://www.iisd.org/sites/default/files/publications/case-study-chile-horizontal-linkages.pdf>

IGF (2018d), *Women in Artisanal and Small-Scale Mining: Challenges and Opportunities for Greater Participation*, International Institute for Sustainable Development, <https://www.iisd.org/system/files/publications/igf-women-asm-challenges-opportunities-participation.pdf>

IGF (2017), *Guidance for Governments: Managing Artisanal and Small-scale Mining*, International Institute for Sustainable Development, [https://www.iisd.org/system/files/publications/igf-guidance-for-governments-asm\\_0.pdf](https://www.iisd.org/system/files/publications/igf-guidance-for-governments-asm_0.pdf)

ILO (International Labour Organization) (2019), *Child Labour in Mining and Global Supply Chains*, [https://www.ilo.org/manila/publications/WCMS\\_720743/lang-en/index.htm](https://www.ilo.org/manila/publications/WCMS_720743/lang-en/index.htm)

IMPACT (2018), *Best Practices: Formalization and Due Diligence in Artisanal and Small-scale Mining*, [https://media.africaportal.org/documents/IMPACT\\_ASM-Best-Practices\\_May-2018-EN-web.pdf](https://media.africaportal.org/documents/IMPACT_ASM-Best-Practices_May-2018-EN-web.pdf)

IRP (International Resource Panel) (2020). *Mineral Resource Governance in the 21st Century: Gearing Extractive Industries Towards Sustainable Development*, United Nations Environment Programme, p.131, <https://www.resourcepanel.org/reports/mineral-resource-governance-21st-century>

Jiang, S. et al. (2020), Environmental impacts of lithium production showing the importance of primary data of upstream process in life-cycle assessment, *Journal of Environmental Management*, 262 (January), 110253, <https://doi.org/10.1016/j.jenvman.2020.110253>

Jucá, B. (2019), Responsável por fiscalizar barragens, anm já admitiu falta de verba para vistorias 'in loco' (Responsible for dams' inspections, anm has already admitted lack of funds for 'in loco' verifications), [https://brasil.elpais.com/brasil/2019/02/07/politica/1549559820\\_961591.html](https://brasil.elpais.com/brasil/2019/02/07/politica/1549559820_961591.html)

Kelly, J.C., Dai, Q. and Wang, M. (2020) Globally regional life cycle analysis of automotive lithium-ion nickel manganese cobalt batteries. *Mitigation and Adaptation Strategies for Global Change* 25, 371–396. <https://doi.org/10.1007/s11027-019-09869-2>

Kobayashi, H., H. Watando and M. Kakimoto (2014), A global extent site-level analysis of land cover and protected area overlap with mining activities as an indicator of biodiversity pressure, *Journal of Cleaner Production*, 84(1), 459–468, <https://doi.org/10.1016/j.jclepro.2014.04.049>

Kossof, D. et al. (2014), Mine tailings dams: Characteristics, failure, environmental impacts, and remediation, 51 *Applied Geochemistry* 229-245, <https://doi.org/10.1016/j.apgeochem.2014.09.010>

Korinek, J. and Ramdoo, I. (2017), Local content policies in mineral-exporting countries, *OECD Trade Policy Papers*, No. 209, OECD Publishing, Paris, <https://doi.org/10.1787/18166873>

Lebdioui, A. et al. (2020), Local-foreign technology interface, resource-based development and industrial policy: how Chile and Malaysia are escaping the middle-income trap, *Journal of Technology Transfer*, <https://doi.org/10.1007/s10961-020-09808-3>

Lèbre, É. and G. Corder, (2015), Integrating industrial ecology thinking into the management of mining waste, *Resources*, 4(4), 765–786, <https://doi.org/10.3390/resources4040765>

Lee et al. (2020), Responsible or reckless? A critical review of the environmental and climate assessments of mineral supply chains, *Environmental Research Letters*, 15 103009, <https://iopscience.iop.org/article/10.1088/1748-9326/ab9f8c/pdf>

Leonida C. (2020), How to make filtered tailings feasible, *Engineering and Mining Journal*, <https://www.emj.com/features/how-to-make-filtered-tailings-feasible/>

Lindstedt, C., and D. Naurin (2010), Transparency is not enough: Making transparency effective in reducing corruption, *International Political Science Review*, no. 31, 301-322.

LME (London Metal Exchange) (2020), *General Updates 20/194, Discussion Paper on LME Passport*, <https://www.lme.com/-/media/Files/News/Notices/2020/08/GENERAL-UPDATES-20-194-Discussion-Paper-on-LMEpassport.pdf>

LME (2019), *LME Responsible Sourcing Requirements – Summary, Fact Sheet*, <https://www.lme.com/-/media/Files/About/Responsibility/Responsible-Sourcing/LME-responsible-sourcing-factsheet.pdf>

Lutter S. and S. Giljum (2019), *FINEPRINT Brief No. 9, December 2019, Copper Production in Chile Requires 500 Million Cubic Metres of Water*, <https://www.fineprint.global/publications/briefs/chile-copper-water/>

Marx, J. et al. (2018), Comparative life cycle assessment of NdFeB permanent magnet production from different rare earth deposits, *ACS Sustainable Chemistry and Engineering*, 6(5), 5858–5867, <https://doi.org/10.1021/acssuschemeng.7b04165>

McKinsey (2020), *Climate risk and decarbonization: What every mining ceo needs to know*, <https://www.mckinsey.com/business-functions/sustainability/our-insights/climate-risk-and-decarbonization-what-every-mining-ceo-needs-to-know>

Memary, R. et al. (2012), Life cycle assessment: A time-series analysis of copper, *Journal of Cleaner Production*, 33, 97–108, <https://doi.org/10.1016/j.jclepro.2012.04.025>

Miller, K. A. et al. (2018), An overview of seabed mining including the current state of development, environmental impacts, and knowledge gaps, *Frontiers in Marine Science*, 4 (JAN), <https://doi.org/10.3389/fmars.2017.00418>

Mudd, G. M. and Jowitt S. M. (2016), *From Mineral Resources to Sustainable Mining – the Key Trends to Unlock the Holy Grail?*, Proceedings of the 3rd AusIMM International Geometallurgy Conference, Australasian Institute of Mining and Metallurgy, Perth, Australia, 15-16 June 2016, p. 18.

Murakami, S. et al. (2020), Ecological footprint and total material requirement as environmental indicators of mining activities: Case studies of copper mines, *Environmental and Sustainability Indicators*, 8 (October), 100082, <https://doi.org/10.1016/j.indic.2020.100082>

Navarro, L. (2017), The World Class Supplier Program for mining in Chile: Assessment and perspectives, *Resources Policy* 58, 49-61, <https://doi.org/10.1016/j.resourpol.2017.10.008>

Northey, S. A. et al. (2014), Evaluating the application of water footprint methods to primary metal production systems, *Minerals Engineering*, 69, 65–80, <http://doi:10.1016/j.mineng.2014.07.006>

NRCAN (Natural Resources Canada) (2021), *Glencore RAGLAN Mine Renewable Electricity Smart-Grid Pilot Demonstration* (web page), <https://www.nrcan.gc.ca/science-and-data/funding-partnerships/funding-opportunities/current-investments/glencore->

[raglan-mine-renewable-electricity-smart-grid-pilot-demonstration/16662](https://atlas.gc.ca/imaema/en/index.html)

NRCan (2020), *Lands and Minerals Sector – Indigenous Mining Agreements* (interactive map and database), <https://atlas.gc.ca/imaema/en/index.html>, (accessed 12 April 2021).

NRCan (2016), *CanmetMINING Research Plan 2016–2021: Green Mining Initiative*, [https://www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/mining-materials/PDF/CanmetMINING\\_research\\_plan\\_document\\_access\\_e.pdf](https://www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/mining-materials/PDF/CanmetMINING_research_plan_document_access_e.pdf)

Nuss, P. and M. J. Eckelman (2014), Life cycle assessment of metals: A scientific synthesis, *PLoS ONE*, 9(7), 1–12, <https://doi.org/10.1371/journal.pone.0101298>

OECD (Organisation for Economic Co-operation and Development) (2021a), *How to Address Bribery and Corruption Risks in Mineral supply chains*, <https://mneguidelines.oecd.org/faq-how-to-address-bribery-and-corruption-risks-in-mineral-supply-chains.pdf>.

OECD (2021b), *An International Standard: OECD Due Diligence Guidance for Responsible Mineral Supply Chains*, <http://mneguidelines.oecd.org/an-international-standard-oecd-due-diligence-guidance-for-responsible-mineral-supply-chains.htm>

OECD (2019a), *Mining and Green Growth in the EECCA Region*, <https://doi.org/10.1787/1926a45a-en>

OECD (2019b), *Trade Policy Brief: Local Content Requirements*, [https://issuu.com/oecd.publishing/docs/local\\_content\\_requirements](https://issuu.com/oecd.publishing/docs/local_content_requirements)

OECD (2019c), *Interconnected Supply Chains: A Comprehensive Look at Due Diligence Challenges and Opportunities Sourcing Cobalt and Copper from the Democratic Republic of the Congo*, <https://mneguidelines.oecd.org/Interconnected-supply-chains-a-comprehensive-look-at-due-diligence-challenges-and-opportunities-sourcing-cobalt-and-copper-from-the-DRC.pdf>

OECD (2018), *Alignment Assessment of Industry Programmes with the OECD Minerals Guidance*, <http://mneguidelines.oecd.org/Alignment-assessment-of-industry-programmes-with-the-OECD-minerals-guidance.pdf>

OECD (2016), *OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas: Third Edition*. <http://dx.doi.org/10.1787/9789264252479-en>

OECD (2014), *Foreign Bribery Report: An Analysis of the Crime of Bribery of Foreign Public Officials*, <https://www.oecd-ilibrary.org/docserver/9789264226616-en.pdf>

Opitz, J. and W. Timms (2016), *Mine water discharge quality – a review of classification frameworks*, Proceedings of the International Mine Water Association, IMWA 2016, Iied 2002, 17–26, [https://www.imwa.info/docs/imwa\\_2016/IMWA2016\\_Opitz\\_58.pdf](https://www.imwa.info/docs/imwa_2016/IMWA2016_Opitz_58.pdf)

Otto, J. (2018), How do we legislate for improved community development in extractive industries, *The management of resources as a driver of sustainable development*, Oxford University Press, <https://oxford.universitypressscholarship.com/view/10.1093/oso/9780198817369.001.0001/oso-9780198817369-chapter-32>

Pan, Y. and H. Li (2016), Investigating heavy metal pollution in mining brownfield and its policy implications: A case study of the bayan obo rare earth mine, Inner Mongolia, China, *Environmental Management*, 57(4), 879–893. <http://doi:10.1007/s00267-016-0658-6>

Ramdoe, I. (2016), Local content, trade and investment: Is there policy space left for linkages development in resource-rich countries? (Discussion Paper. No. 205), ECDPM, <http://ecdpm.org/publications/local-content-trade-investment/>

RCS Global Group (2019), *Saving the EV revolution: better mining*, <https://www.rcsglobal.com/pdfs/20191810%20RCS%20Global%20Group%20Better%20Mining%20Saving%20EVs%20Report%20Public.pdf>

RMF (Responsible Mining Foundation) and CCSI (Columbia Center on Sustainable Investment) (2020), *Mining and the SDGs: a 2020 status update*, [https://www.responsibleminingfoundation.org/app/uploads/RMF\\_CC\\_SI\\_Mining\\_and\\_SDGs\\_EN\\_Sept2020.pdf](https://www.responsibleminingfoundation.org/app/uploads/RMF_CC_SI_Mining_and_SDGs_EN_Sept2020.pdf)

RMF (2020a), *RMI Report 2020*, <https://2020.responsibleminingindex.org/en>

RMF (2020b), *Gender Inequality Runs Deep in Mining*, <https://www.responsibleminingfoundation.org/research/gender2020/>

Reuters (2020a), Trafigura's Congo artisanal cobalt project to end, replaced by industrial mining, <https://www.reuters.com/article/us-congo-mining-idUSKBN28R348>

Reuters (2020b), Huayou temporarily suspends purchases of cobalt from two Congo mines, <https://www.reuters.com/article/congo-mining-huayou-cobalt/huayou-temporarily-suspends-purchases-of-cobalt-from-two-congo-mines-idINL8N2FE5MZ>

Reuters (2019a), BHP switches to green power for Chilean copper starting 2021, <https://www.reuters.com/article/us-bhp-chile-renewables-idUSKBN1X0019>

Reuters (2019b), Brazil bans upstream mining dams after deadly Vale disaster, <https://www.reuters.com/article/us-vale-sa-disaster-idUSKCN1Q718C>

Rio Tinto (2020), *Our Approach to Climate Change 2019*, London, United Kingdom.

Roskill (2021), Cobalt, sustainability: DRC launches monopoly over cobalt ASM to improve ESG credentials,



<https://roskill.com/news/cobalt-sustainability-drc-launches-monopoly-over-cobalt-asm-to-improve-esg-credentials>

Roskill (2020), Roskill: CO2 emissions from lithium production set to triple by 2025, <https://www.globenewswire.com/news-release/2020/10/05/2103285/0/en/Roskill-CO2-emissions-from-lithium-production-set-to-triple-by-2025.html>

Sahla et al. (2021), *How can Anticorruption Actors use EITI Disclosures?*, Natural Resource Governance Institute, [https://resourcegovernance.org/sites/default/files/documents/how\\_c\\_an\\_anticorruption\\_actors\\_use\\_eiti\\_disclosures.pdf](https://resourcegovernance.org/sites/default/files/documents/how_c_an_anticorruption_actors_use_eiti_disclosures.pdf)

Santamarina, J. et al. (2019), Why coal ash and tailings dam disasters occur, 364 *Science* 526-528, <https://www.doi.org/10.1126/science.aax1927>

Sonter, L. J. et al. (2014), Processes of land use change in mining regions, *Journal of Cleaner Production*, 84(1), 494–501, <https://doi.org/10.1016/j.jclepro.2014.03.084>

Stanford Law School (2020), *Foreign Corrupt Practices Act Clearinghouse, Key Statistics from 1977 to Present* (database), <http://fcpa.stanford.edu/statistics-keys.html>, (accessed 16 February 2021).

S&P Global (2021), New lithium supply chains could slash sector emissions by nearly a third, <https://www.spglobal.com/platts/en/market-insights/latest->

[news/coal/121120-new-lithium-supply-chains-could-slash-sector-emissions-by-nearly-a-third-roskill](https://www.spglobal.com/platts/en/market-insights/latest-news/coal/121120-new-lithium-supply-chains-could-slash-sector-emissions-by-nearly-a-third-roskill)

Tost, M. et al. (2018), Metal mining's environmental pressures: A review and updated estimates on CO2 emissions, water use, and land requirements, *Sustainability* (Switzerland), 10(8), <https://doi.org/10.3390/su10082881>

Transparency International (2021), *Corruption Perceptions Index 2020* (database), <https://www.transparency.org/en/cpi/2020/index/nzl>, (accessed 12 April 2021).

UNCTAD (United Nations Conference on Trade and Development) (2021), *UNCTAD Statistics – International merchandise trade datasets* (database), <https://unctadstat.unctad.org/EN/BulkDownload.html>, (accessed 26 February 2021).

US BLS (US Bureau of Labor Statistics) (2021), Labor Force Statistics from the Current Population Survey: 18. Employed Persons by Detailed Industry, Sex, Race, and Hispanic or Latino Ethnicity, <https://www.bls.gov/cps/cpsaat18.htm>

US BLS (2020), Number and rate of fatal work injuries, by industry sector, <https://www.bls.gov/charts/census-of-fatal-occupational-injuries/number-and-rate-of-fatal-work-injuries-by-industry.htm>, (accessed 3 March 2021).

US DOL (US Department of Labor) (2019), *Findings on the Worst Forms of Child Labor: Democratic Republic of the Congo*, <https://www.dol.gov/agencies/ilab/resources/reports/child-labor/congo-democratic-republic-drc>

Vale (2020), *Sustainability Report 2019*, [http://www.vale.com/EN/investors/information-market/annual-reports/sustainability-reports/Sustainability%20Reports/Relatorio\\_sustentabilidade\\_vale\\_2019\\_alta\\_en.pdf](http://www.vale.com/EN/investors/information-market/annual-reports/sustainability-reports/Sustainability%20Reports/Relatorio_sustentabilidade_vale_2019_alta_en.pdf)

Vulcan Energy (2020), Zero Carbon Lithium®, <https://v-er.com/wp-content/uploads/2020/11/2020AGMPresentation.pdf>

Watson, K. (2020), 'Vale ended our lives': Broken Brumadinho a year after dam collapse, BBC, <https://www.bbc.com/news/world-latin-america-51220373>

WEF (World Economic Forum) (2020), *Making Mining Safe and Fair: Artisanal Cobalt Extraction in the Democratic Republic of the Congo*, [http://www3.weforum.org/docs/WEF\\_Making\\_Mining\\_Safe\\_2020.pdf](http://www3.weforum.org/docs/WEF_Making_Mining_Safe_2020.pdf)

World Mine Tailings (2020), *World Mine Tailings Failures – From 2015, State of Worldmine Tailings 2020* (web page), <https://worldminetailingsfailures.org/>

WRI (World Resources Institute) (2021), *Aqueduct Country Rankings* (database), <https://www.wri.org/applications/aqueduct/country-rankings/>, (accessed 30 April 2021).