



Global Trade Analysis Project

GTAP Critical Minerals (GTAP-CM) Update

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In collaboration with

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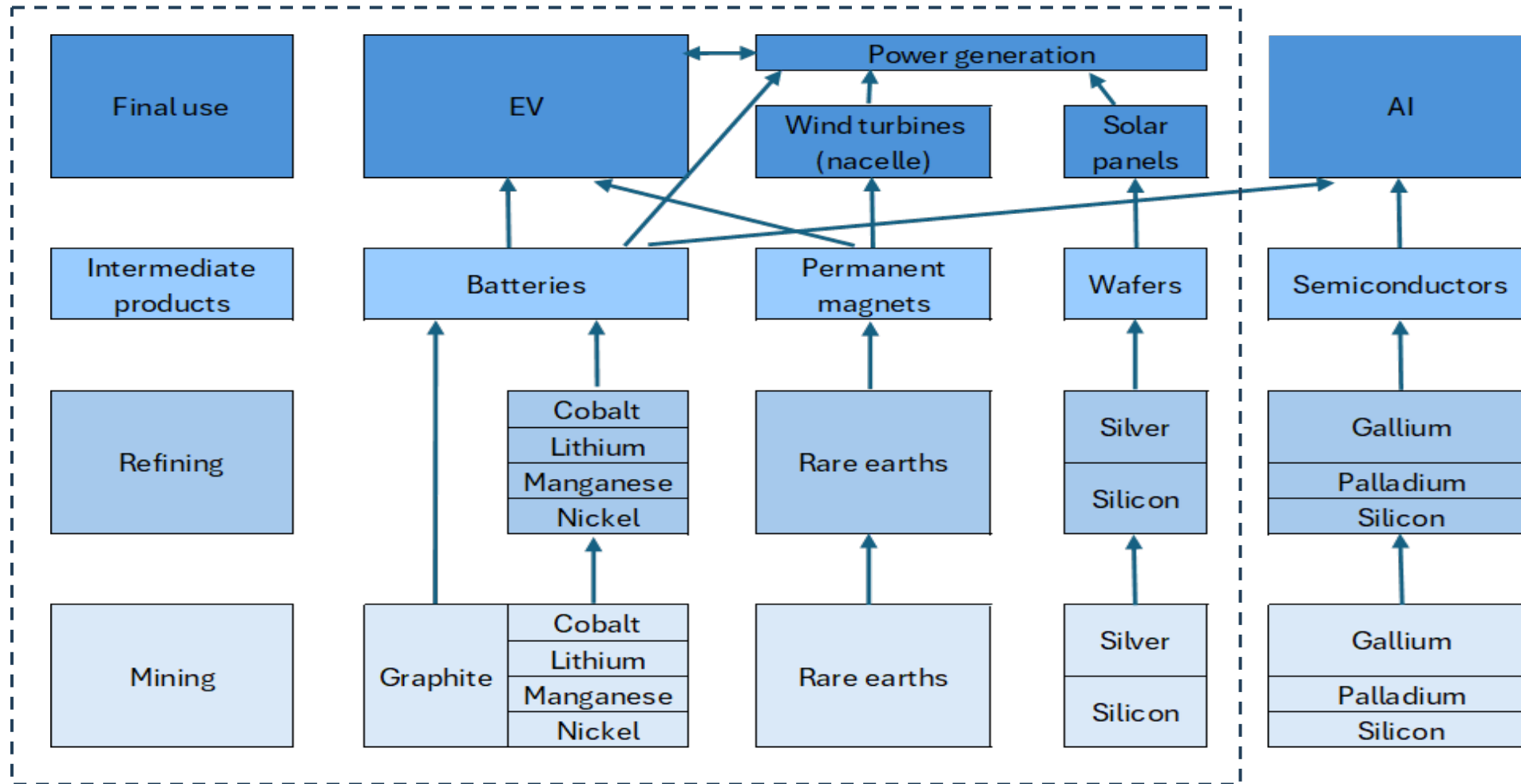
GTAP-CE: Starting point for the GTAP-CM developments

No.	GTAP	New sector	Description
1	oxt	nmn	Non-metallic minerals mining
2		mio	Mining of iron ores
3		mao	Mining of aluminum ores
4		mco	Mining of copper ores
5		moo	Mining of other ores
6	rpp	rbr	Rubber products
7		plp	Plastic products – primary
8		pls	Plastic products – secondary
9		plr	Recycling - plastics
10	nmm	cem	Cement
11		nmx	Other mineral products
12	i_s	isp	Iron and steel – primary
13		iss	Iron and steel – secondary
14		ris	Recycling - iron and steel
15		isc	Iron and steel casting
16	nfm	app	Aluminum – primary
17		aps	Aluminum – secondary
18		ral	Recycling - aluminum
19		cpx	Copper – primary
20		cps	Copper – secondary
21		rcp	Recycling - copper
22		mpp	Other metals – primary
23		mps	Other metals – secondary
24		rom	Recycling - other metals
25		nfc	Non-ferrous metals casting
26	chm	nfr	Nitrogen fertilizer
27		pfr	Phosphorus fertilizer
28		kfr	Potassium fertilizer
29		xch	Other chemicals

- First publication release of the GTAP-CE Data Base (January 2025): 76 GTAP-Power 11 Data Base sectors are disaggregated into 99 sectors.
- These sectoral splits provide complete coverage of the CBAM commodities (except hydrogen).
- GTAP-CM sectoral splits are implemented on top of the GTAP-CE sectoral details, further disaggregating selected upstream and downstream activities.

Source: Chepeliev, M., Wojtowicz, K., Yilmaz, A.N., Simonato, T., Bekkers, E. and van der Mensbrugghe, D., 2025. Advancing the representation of critical minerals supply chains in the global economic models. Paper presented during the 28th Annual Conference on Global Economic Analysis (Kigali, Rwanda). https://www.gtap.agecon.purdue.edu/resources/res_display.asp?RecordID=7561

Identification of the key elements of the renewable energy and AI supply chains



Source: Chepeliev, M., Bekkers, E., Iyer, G., Qiu, Y., Wojtowicz, K., Yarlagadda, B., and Yilmaz, A.N. 2026. Critical Minerals and the Global Supply Chain. Annual Review of Resource Economics (under review).

Overview of GTAP-CM sectoral splits

Disaggregated mining and refining activities

No.	GTAP-CE sector	GTAP-CM sector	
		Code	Description
1	Mining of other ores ("moo")	man	Manganese
2		nik	Nickel
3		cob	Cobalt
4		zin	Zink
5		chr	Chromium
6		tit	Titanium
7		nio	Niobium
8		sil	Silver
9		gal	Gallium
10		pgm	Platinum group metals
11		mooR	Rest of other ores mining
12	Non-metallic minerals mining ("nmn")	lit	Lithium
13		gra	Graphite
14		rre	Rare earth elements
15		pho	Phosphorus
16		mgm	Magnesium
17		nmnR	Rest of non-metallic minerals mining
18	Other chemicals ("xch")	coR	Refined cobalt
19		mnR	Refined manganese
20		liR	Refined lithium
21		reR	Refined rare earths
22		niR	Refined nickel
23		agp	Artificial graphite
24		xchR	Rest of other chemicals
25	Other metals ("mpp")	siR	Refined silver
26		mppR	Rest of other metals

Disaggregated downstream uses

No.	GTAP-CE sector	GTAP-CM sector	
		Code	Description
27	Electrical equipment ("eeq")	mag	Permanent magnets
28		LCO	Lithium Cobalt Oxide batteries
29		LFP	Lithium Iron Phosphate batteries
30		NCM	Nickel Manganese Cobalt Oxide batteries
31		NCA	Lithium Nickel Cobalt Aluminum Oxide batteries
32		LMO	Lithium Manganese Oxide batteries
33		egs	Nacelle
34		eeqR	Rest of electrical equipment
35	Electronics ("ele")	sop	Solar panels
36		eleR	Other electronics
37	Motor vehicles and parts ("mvh")	evl	Private electric vehicles EV
38		pvl	Private hybrid vehicles PHEV
39		cbl	Private combustion engine vehicles
40		evb	Electric buses
41		vpr	Motor vehicle parts
42		otv	Other transport vehicles

- In addition to mining activities, refining and selected downstream uses are disaggregated in the GTAP-CM Data Base.
- As a result, 7 original GTAP-CE sectors are further disaggregated into 42 activities.

GTAP-CM v11 Data Base is currently under testing

- Preliminary version of the GTAP critical minerals (GTAP-CM) Data Base has been developed in collaboration with WTO colleagues and is currently under internal testing:
 - Model runs and diagnostics have identified several anomalies in the cost structures of disaggregated sectors, which are currently being addressed.
 - GTAP-CM documentation is under development.
 - We are planning to share the updated version of GTAP-CM with GTAP Board Members within the next 1 month for feedback and comments, followed by the public release.



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