



SILVER

Supply : Structural deficits to remain

- ~**70%** supply is a byproduct (of copper/zinc/lead etc), supply is inelastic and thus not easy to catch up in a short period of time
- Costs of production vary widely by mine (ore grade, depth, labor, energy, royalties, taxes, and jurisdiction), in general it could be produced below \$30/oz(AISC) but long lead time is needed due to its byproduct dominance, byproduct producers (the majority) won't significantly ramp output unless copper/zinc/lead prices justify it
- Developing a new mine (especially primary silver) takes 5–10+ years due to exploration, permitting, financing, and construction.
- Recycling accounts for ~20% of total supply (material recycling company - Umicore)
- Global silver reserves is estimated ~530,000-640,000 tonnes, but extraction rates and economics matter more than raw tonnage

Demand : Stabilizing after the rebound from 2020, medium term imbalance continue to drive prices higher

- **Total** silver demand is projected to reach 48,000 to 52,000 t/y in 2030, whereas supply would reach 34,000 t/y, causing a structural deficit to linger
- Industrial demand accounts for ~60% of total silver demand, EU industry estimates demand from solar could reach 14,000 tonnes in 2030 to account for ~**40%** of total supply
- Green tech adoption: Silver being the most conductive, corrosion resistance & durable material, is used in most solar panel, power grid and EV
- **Double digit % CAGR for Solar demand for next decade** : In 2025, the global **Solar** industry is on track to consume ~7,200 tonnes of silver — roughly **20%** of total annual silver supply and more than double the amount used in 2020
- The global solar cell market is expected to reach \$182.83 billion in 2026, with a projected compound annual growth rate (**CAGR**) of **16.8%** from 2026 to 2035, potentially reaching \$750.47 billion by 2035
- Global **PV installed capacity** has grown from 40GW in 2010 to 1TW in 2022 & 2.8TW in 2025(thanks to cost of PV-generated energy having fallen by ~90% in last decade)
- EV adoption : Internal combustion engine vehicles typically contain 15–28 g of silver, hybrid and battery electric vehicles (EVs) use approximately 18–34 g and 25–50 g respectively
- Macro factor : Rate cut; Gold/Silver ratio(historical avg 10-90, current ~54); Rising investment demand on Geopolitical tension & decline in confidence on USD



Silver Supply and Demand

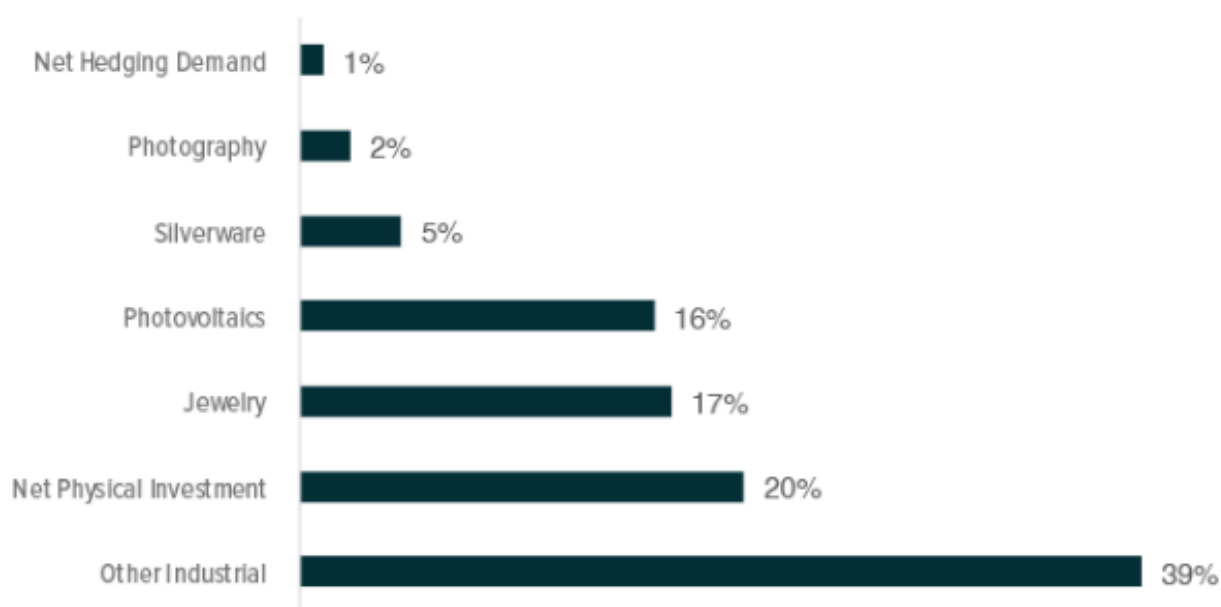
Million ounces	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025F	Year on Year	
											2024	2025F
Supply												
Mine Production	900.1	863.9	850.8	837.4	783.8	830.8	839.4	812.7	819.7	835.0	1%	2%
Recycling	156.3	160.2	162.3	163.8	180.5	190.7	193.5	183.5	193.9	193.2	6%	0%
Net Physical Disinvestment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	na	na
Net Hedging Supply	0.0	0.0	0.0	13.9	8.5	0.0	0.0	0.0	0.0	0.9	na	na
Net Official Sector Sales	1.1	1.0	1.2	1.0	1.2	1.5	1.7	1.6	1.5	1.5	-9%	4%
Total Supply	1,057.4	1,025.1	1,014.3	1,016.2	974.0	1,023.1	1,034.6	997.8	1,015.1	1,030.6	2%	2%
Demand												
Industrial (total)	491.0	528.0	525.8	525.4	511.9	564.1	592.3	657.1	680.5	677.4	4%	0%
Electrical & Electronics	309.0	339.1	330.4	326.6	321.4	350.7	370.7	444.4	460.6	465.6	4%	1%
...of which photovoltaics	81.6	99.3	87.0	74.9	82.8	88.9	118.1	192.7	197.6	195.7	3%	-1%
Brazing Alloys & Solders	49.1	50.9	52.0	52.4	47.5	50.5	49.2	50.2	51.6	52.9	3%	3%
Other Industrial	132.9	138.0	143.5	146.4	142.9	162.9	172.4	162.6	168.4	158.9	4%	-6%
Photography	34.7	32.4	31.4	30.7	26.9	27.7	27.7	27.3	25.5	24.2	-7%	-5%
Jewelry	189.1	196.2	203.2	201.6	150.9	182.0	234.5	203.1	208.7	196.2	3%	-6%
Silverware	53.5	59.4	67.1	61.3	31.2	40.7	73.5	55.1	54.2	46.0	-2%	-15%
Net Physical Investment	212.9	155.8	165.9	187.4	208.1	284.3	338.3	244.3	190.9	204.4	-22%	7%
Net Hedging Demand	12.0	1.1	7.4	0.0	0.0	3.5	17.9	11.5	4.3	0.0	-62%	na
Total Demand	993.3	972.9	1,000.8	1,006.4	929.0	1,102.4	1,284.2	1,198.5	1,164.1	1,148.3	-3%	-1%
Market Balance	64.1	52.2	13.5	9.8	45.1	-79.3	-249.6	-200.6	-148.9	-117.6	-26%	-21%
Net Investment in ETPs	53.9	7.2	-21.4	83.3	331.1	64.9	-117.4	-37.6	61.6	70.0	na	14%
Market Balance less ETPs	10.2	45.1	34.9	-73.5	-286.1	-144.3	-132.2	-163.0	-210.5	-187.6	29%	-11%
Nominal Silver Price (US \$/oz, London price)	17.14	17.05	15.71	16.21	20.55	25.14	21.73	23.35	28.27	-	21%	na

Source: Metals Focus

Material and statistics in this section were adapted in part from the Silver Institute's *World Silver Survey 2025*.

GLOBAL SILVER DEMAND BY CATEGORY

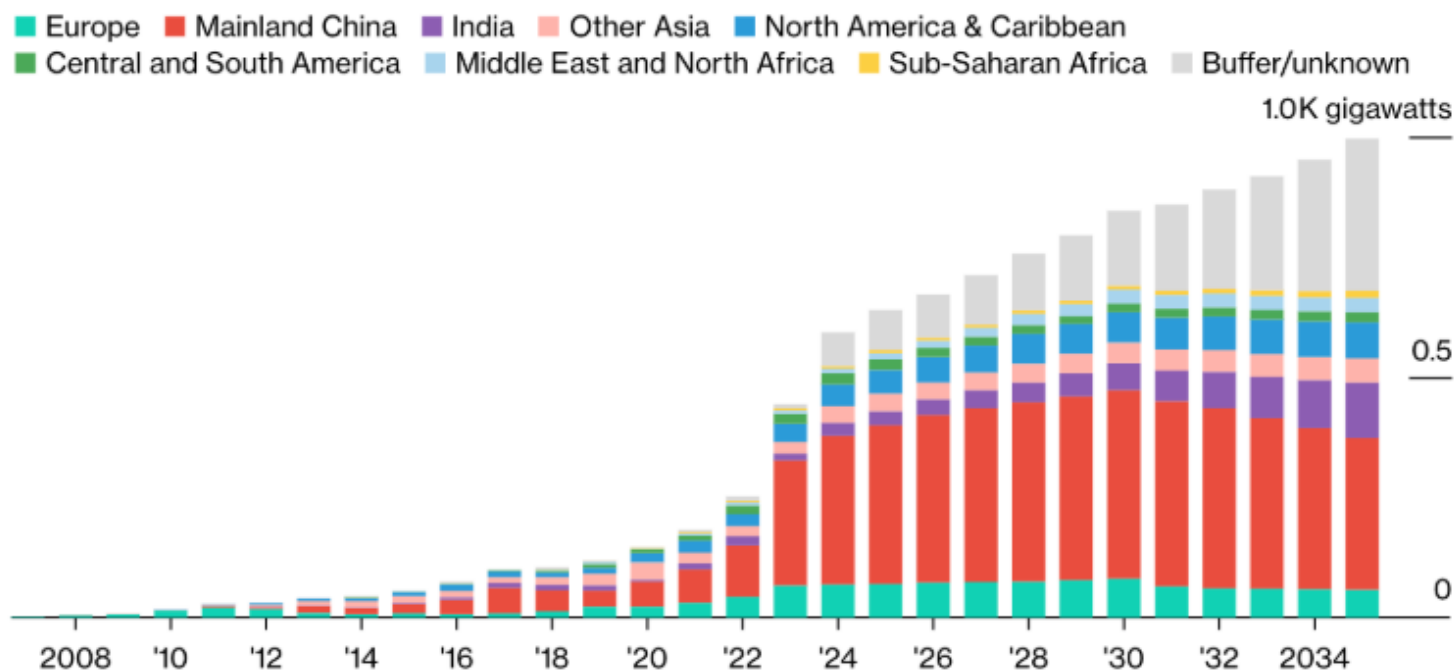
Source: Global X ETFs illustration with information derived from World Silver Survey, April 2024.





Global PV Industry to Build 592 Gigawatts This Year

Solar power new build capacity by year, and BNEF's mid forecast



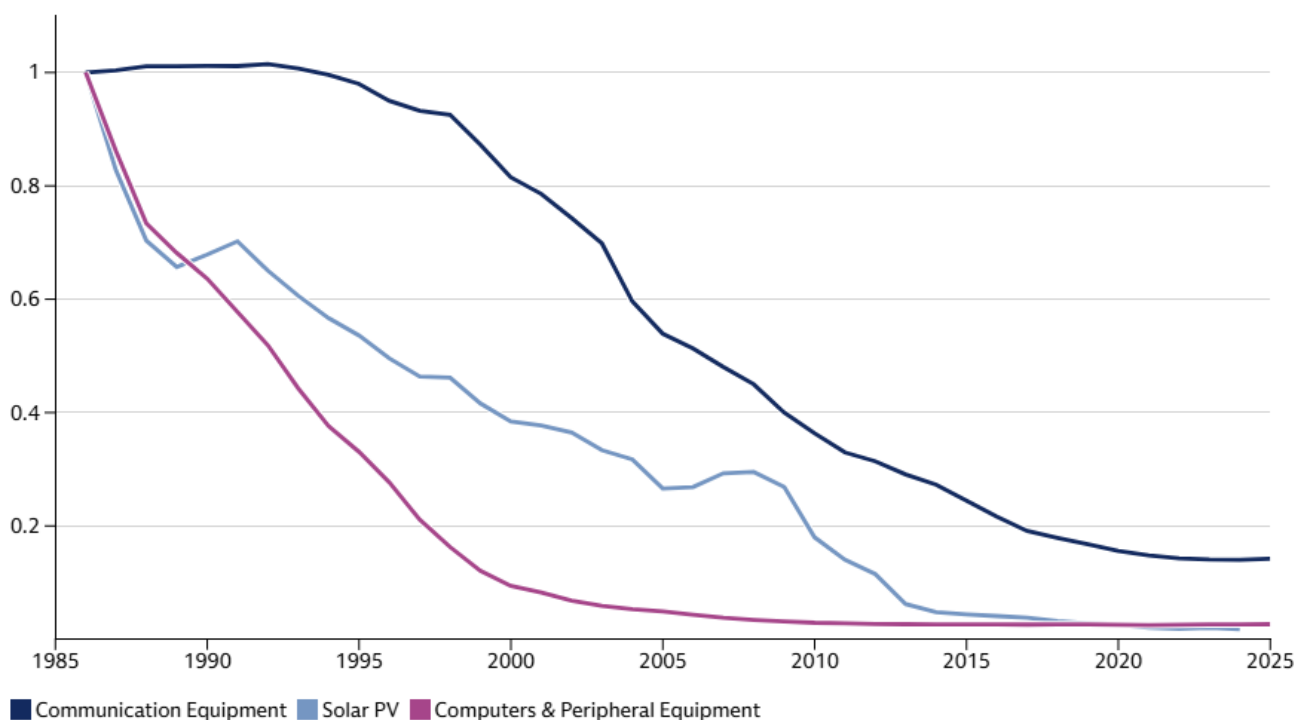
Source: BloombergNEF

Note: Capacity recorded is that of the solar modules.

BloombergNEF

The price of solar photovoltaics has declined at an unprecedented rate

Investment price index; index = 1985



Source: Ember, Pinto et al (2013), Bureau of Economic Analysis, Haver Analytics, Goldman Sachs Research

Goldman Sachs

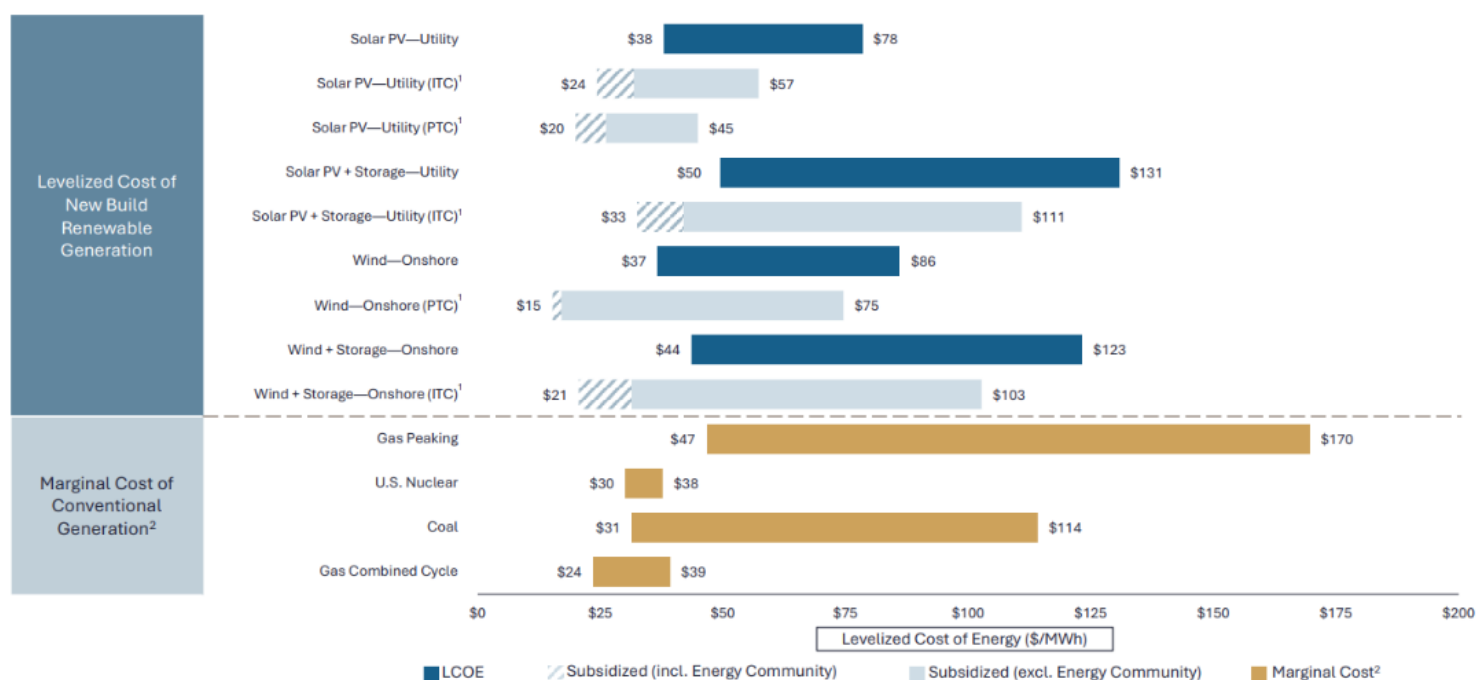


Historical Silver Price Movement:

Historical silver rally in 1970-1980, from \$1.5 to \$50 ounce (End of Bretton Woods/ Inflation/ Confidence on paper money/Hunt Brothers)

Period / Rally	Start Price (USD)	Intrayear Peak Price	Percentage Gain
1979–1980 Hunt Brothers	\$7.69	\$49.45	543%
2009–2011 Post-Financial Crisis	\$12.59	\$49.47	293%
2020 Pandemic Rally	\$14.16	\$29.26	107%
2025–2026 All-time High	\$29.00	\$121.67	320%

Timeline	Pre-1933 U.S. Fixed Coinage Act	1933 – 1964 U.S. Fixed Devalued \$	Mid-1968 – Jan-1972 Dollar Debased Close Gold Window	Mid-1973 – Mid-1978 Enlightenment And Gold Legalized	Mid-1978 – Jan-1980 Rapid Inflation Dollar Fear	1980 January Monthly Average	1980 January London Fix Highest	1980 January NY COMEX Highest Closing	1980 January NY COMEX Intraday High
GOLD									
Basic Range	\$20.67	\$35.00	\$35 - \$40	\$100 - \$183	\$183 - \$678				
Basic Price	\$20.67	\$35.00	\$38.00	\$140.00	currency instability	\$678	\$843	\$847	\$882
SILVER									
Basic Range			\$1.50 - \$2.50	\$2.75 - \$5.75	\$5.75 - \$36				
Basic Price	\$1.29	\$1.29	\$2.00	\$4.50	currency instability	\$36	\$49.45	\$48.70	\$50.35
Gold/Silver									
Ratio	16	27	19	31	21	19	17	17	18
Relatively Speaking: <i>historic ratio silver lags gold 1834-1932 dishoarding metals become more freely traded silver lags gold Gold legalized 1974 silver plays catch up When silver peaked, it was same value, relative to gold, as 1834-1932 and 1970.</i>									





This research report is provided to you for informational purposes only. Nothing contained in this report is, or should be, relied upon as a promise or representation as to the future performance. The estimated financial information contained in this report, if any, is based on certain assumptions and the analysis of information available at the time that this information was prepared. There is no representation, warranty or other assurance that any projections contained in this report will be realized.

This report is not intended to provide personal investment advice. Investors should seek advice regarding the suitability of any investments or strategies discussed in this report. Opinions, estimates and projections are those of the Macedon Asset Management Ltd. ("Macedon Asset Management") research team and are subject to change without notice. Individuals involved in the production of research materials operate independently and without influence from any internal or external stakeholders. This report is not, and is not to be construed as (i) an offer to sell or solicitation of an offer to buy securities or (ii) an offer to transact business in any jurisdiction or (iii) investment advice to any party. Products and services described herein are only available where they can be lawfully provided.