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(Data in thousand metric tons of copper content unless otherwise noted)

Domestic Production and Use: U.S. mine production of copper in 2015 decreased by 8% to about 1.25 million tons, and was valued at about \$7.6 billion. Arizona, New Mexico, Utah, Nevada, Montana, and Michigan—in descending order of production—accounted for more than 99% of domestic mine production; copper also was recovered in Idaho and Missouri. Twenty-six mines recovered copper, 18 of which accounted for about 99% of production. Three primary smelters, 3 electrolytic and 4 fire refineries, and 15 electrowinning facilities operated during 2015. Refined copper and scrap were used at about 30 brass mills, 14 rod mills, and 500 foundries and miscellaneous consumers. Copper and copper alloys products were used in building construction, 43%; electric and electronic products, 19%; transportation equipment, 19%; consumer and general products, 12%; and industrial machinery and equipment, 7%.¹

Salient Statistics—United States:	2011	2012	2013	2014	2015^e
Production:					
Mine, recoverable	1,110	1,170	1,250	1,360	1,250
Refinery:					
Primary	992	962	993	1,050	1,000
Secondary	37	39	47	46	50
Copper from old scrap	153	164	166	171	160
Imports for consumption:					
Ores and concentrates	15	6	3	(?)	(?)
Refined	670	630	734	620	770
General imports, refined	649	628	730	614	700
Exports:					
Ores and concentrates	252	301	348	410	380
Refined	40	169	111	127	120
Consumption:					
Reported, refined	1,760	1,760	1,830	1,750	1,800
Apparent, unmanufactured ³	1,730	1,760	1,760	1,780	1,780
Price, average, cents per pound:					
Domestic producer, cathode	405.9	367.3	339.9	318.1	277.0
London Metal Exchange, high-grade	399.8	360.6	332.3	311.1	270.0
Stocks, yearend, refined, held by U.S. producers, consumers, and metal exchanges	409	236	258	193	180
Employment, mine and mill, thousands	10.6	11.5	12.1	12.1	11.4
Net import reliance ⁴ as a percentage of apparent consumption (refined copper)	34	36	34	31	36

Recycling: Old scrap, converted to refined metal and alloys, provided 160,000 tons of copper, equivalent to 9% of apparent consumption. Purchased new scrap, derived from fabricating operations, yielded 670,000 tons of contained copper. Of the total copper recovered from scrap (including aluminum- and nickel-base scrap), brass mills recovered 79%; copper smelters, refiners, and ingot makers, 15%; and miscellaneous manufacturers, foundries, and chemical plants, 6%. Copper in all scrap contributed about 32% of the U.S. copper supply.

Import Sources (2011–14): Unmanufactured (ore and concentrates, blister and anodes, refined, and so forth): Chile, 51%; Canada, 26%; Mexico, 16%; and other, 7%. Refined copper accounted for 87% of unmanufactured copper imports.

Tariff: Item	Number	Normal Trade Relations⁵
		12–31–15
Copper ores and concentrates	2603.00.0000	1.7¢/kg on lead content.
Unrefined copper anode	7402.00.0000	Free.
Refined and alloys; unwrought	7403.00.0000	1.0% ad val.
Copper wire (rod)	7408.11.6000	3.0% ad val.

Depletion Allowance: 15% (Domestic), 14% (Foreign).

Government Stockpile: None.

Events, Trends, and Issues: In 2015, the COMEX spot copper monthly average price increased to \$2.89 per pound of copper in May from \$2.65 per pound in January. In August, however, it fell to \$2.33 per pound, the lowest monthly average since June 2009. The decrease in the copper price was in large part owing to reduced demand growth from

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slower economic growth in China. At the end of August, domestic stocks of refined copper were 12% lower than those at yearend 2014. The International Copper Study Group (ICSG) projected that in 2015, global refined copper production would exceed consumption by about 40,000 tons. Global production of refined copper was projected to increase by 1.0% and consumption was projected to decrease by 1.2%.⁶

U.S. mine production decreased by about 8% in 2015, mainly owing to decreases in production in Arizona and Utah. Copper production at the Bingham Canyon Mine in Utah decreased by an estimated 100,000 tons owing to lower mill throughput during repair work on the east wall of the mine. The two leading domestic producers announced production decreases at mines in Arizona during the second half of the year owing to low copper prices. Decreases in production were partly offset by increased production at the Morenci Mine in Arizona and at several smaller mines. Total U.S. refined production decreased by about 5% mainly owing to a smelter maintenance shutdown and a concentrate shortfall at Bingham Canyon's integrated smelter.

In 2016, domestic mine and refined production of copper were expected to increase moderately, and according to ICSG projections, global refined copper consumption was expected to exceed output owing to consumption growth of 3.0%, outpacing a 2.3% growth in global refined production. Mine and refined production were expected to lag behind earlier projections owing to mine cutbacks and reduced scrap availability attributable to lower prices.

World Mine Production and Reserves: Reserves for Australia and Peru were revised based on new information from the Governments of those countries. Reserves for Mexico and the United States were revised based on reported company data.

	Mine production		Reserves ⁷
	<u>2014</u>	<u>2015^e</u>	
United States	1,360	1,250	33,000
Australia	970	960	⁸ 88,000
Canada	696	695	11,000
Chile	5,750	5,700	210,000
China	1,760	1,750	30,000
Congo (Kinshasa)	1,030	990	20,000
Mexico	515	550	46,000
Peru	1,380	1,600	82,000
Russia	742	740	30,000
Zambia	708	600	20,000
Other countries	<u>3,600</u>	<u>3,900</u>	<u>150,000</u>
World total (rounded)	18,500	18,700	720,000

World Resources: A 1998 USGS assessment estimated that 550 million tons of copper was contained in identified and undiscovered resources in the United States.⁹ A 2014 USGS global assessment of copper deposits indicated that identified resources contain about 2.1 billion tons of copper (porphyry deposits accounted for 1.8 billion tons of those resources), and undiscovered resources contained an estimated 3.5 billion tons.¹⁰ (For a listing of USGS regional copper resource assessments, go to <http://minerals.usgs.gov/global>.)

Substitutes: Aluminum substitutes for copper in power cable, electrical equipment, automobile radiators, and cooling and refrigeration tube; titanium and steel are used in heat exchangers; optical fiber substitutes for copper in telecommunications applications; and plastics substitute for copper in water pipe, drain pipe, and plumbing fixtures.

^eEstimated.

¹Some electrical components are included in each end use. Distribution for 2014 by the Copper Development Association, Inc., 2015.

²Less than ½ unit.

³Defined as primary refined production + copper from old scrap converted to refined metal and alloys + refined imports – refined exports ± changes in refined stocks. General imports were used to calculate apparent consumption.

⁴Defined as imports – exports + adjustments for industry stock changes for refined copper.

⁵No tariff for Canada, Chile, Mexico, and Peru for items shown. Tariffs for other countries may be eliminated under special trade agreements.

⁶International Copper Study Group, 2015, Forecast 2015–2016: Lisbon, Portugal, International Copper Study Group press release, October 6, 2 p.

⁷See [Appendix C](#) for resource/reserve definitions and information concerning data sources.

⁸ For Australia, Joint Ore Reserves Committee-compliant reserves were about 26 million tons.

⁹U.S. Geological Survey National Mineral Resource Assessment Team, 2000, 1998 assessment of undiscovered deposits of gold, silver, copper, lead, and zinc in the United States: U.S. Geological Survey Circular 1178, 21 p.

¹⁰Johnson, K.M., Hammarstrom, J.M., Zientek, M.L., and Dicken, C.L., 2014, Estimate of undiscovered copper resources of the world, 2013: U.S. Geological Survey Fact Sheet 2014–3004, 3 p., <http://dx.doi.org/10.3133/fs20143004>.