PANORO MINERALS LTD

TSX-V: PML

BVL: PML | BORSE: PZM

OTC: POROF

PERU FOCUSED COPPER EXPLORER

Corporate Presentation October 2020

Forward Looking Statements

Information and statements contained herein that are not historical facts are "forward-looking information" within the meaning of applicable Canadian securities legislation and involve risks and uncertainties. Examples of forward-looking information and statements contained in this news release include information and statements with respect to:

- acceleration of payments by Wheaton Precious Metals to match third party financing by Panoro targeted for exploration at the Cotabambas Project
- payment by Wheaton Precious Metals of US$140 million in installments
- negotiation of a definitive PMPA
- Panoro weathering the current depressed equity and commodity markets, minimizing dilution to existing shareholders and making targeted investments into exploration at the Cotabambas Project
- mineral resource estimates and assumptions
- the PEA, including, but not limited to, base case parameters and assumptions, forecasts of net present value, internal rate of return and payback;
- copper concentrate grade from the Cotabambas Project;

Various assumptions or factors are typically applied in drawing conclusions or making the forecasts or projections set out in forward-looking information. In some instances, material assumptions and factors are presented or discussed in this news release in connection with the statements or disclosure containing the forward-looking information and statements. You are cautioned that the following list of material factors and assumptions is not exhaustive. The factors and assumptions include, but are not limited to, assumptions concerning: metal prices and by-product credits; cut-off grades; short and long term power prices; processing recovery rates; mine plans and production scheduling; process and infrastructure design and implementation; accuracy of the estimation of operating and capital costs; applicable tax and royalty rates; open-pit design; accuracy of mineral reserve and resource estimates and reserve and resource modeling; reliability of sampling and assay data; representativeness of mineralization; accuracy of metallurgical test work; and amenability of upgrading and blending mineralization.

Forward-looking statements are subject to a variety of known and unknown risks, uncertainties and other factors which could cause actual events or results to differ materially from those expressed or implied by the forward-looking statements, including, without limitation:

risks relating to metal price fluctuations;

risks relating to estimates of mineral resources, production, capital and operating costs, decommissioning or reclamation expenses, proving to be inaccurate;

the inherent operational risks associated with mining and mineral exploration, development, mine construction and operating activities, many of which are beyond Panoro's control;

risks relating to Panoro's ability to enforce Panoro's legal rights under permits or licenses or risk that Panoro's will become subject to litigation or arbitration that has an adverse outcome;

- risks relating to Panoro's projects being in Peru, including political, economic and regulatory instability;
- risks relating to the uncertainty of applications to obtain, extend or renew licenses and permits;
- risks relating to potential challenges to Panoro's right to explore and/or develop its projects;
- risks relating to mineral resource estimates being based on interpretations and assumptions which may result in less mineral production under actual circumstances;
- risks relating to Panoro's operations being subject to environmental and remediation requirements, which may increase the cost of doing business and restrict Panoro's operations;
- risks relating to being adversely affected by environmental, safety and regulatory risks, including increased regulatory burdens or delays and changes of law;
- risks relating to inadequate insurance or inability to obtain insurance;
- risks relating to the fact that Panoro's properties are not yet in commercial production;
- risks relating to fluctuations in foreign currency exchange rates, interest rates and tax rates; and
- risks relating to Panoro's ability to raise funding to continue its exploration, development and mining activities.

This list is not exhaustive of the factors that may affect the forward-looking information and statements contained in this news release. Should one or more of these risks and uncertainties materialize, or should underlying assumptions prove incorrect, actual results may vary materially from those described in the forward-looking information. The forward-looking information contained in this news release is based on beliefs, expectations and opinions as of the date of this news release. For the reasons set forth above, readers are cautioned not to place undue reliance on forward-looking information. Panoro does not undertake to update any forward-looking information and statements included herein, except in accordance with applicable securities laws.

Multiple Copper – Gold – Silver Projects Driving Valuation Potential

1	Cotabambas Copper-Gold-Silver	PEA Complete	WHEATON PRECIOUS METALS	Resource Expansion
2	Antilla Copper	PEA Complete	Improved Recoveries	Feasibility
3	Kusiorcco Copper	Cash & 2% Royalty	HUDBAY	Exploration Permitting
4	Humamantata Copper	$10.8 M Funding	JOGMEC	Early Exploration
5	Cochasayhuas Gold-Silver	Cash & 5% Royalty	MINTANIA SAC	Development Permitting

Forecasted Five Year Funding
No Share Equity Dilution

	WHEATON PRECIOUS METALS	HUDBAY	JOGMEC	MINTANIA SAC	Total Funding	
	Cotabambas Copper-Gold-Silver	**Kusiorcco** Copper		**Humamantata** Copper	**Cochasayhuas** Gold-Silver		**Currency**	
	Stream Advance	**Milestone**	**NSR Royalty**	**Expenditures**	**Scheduled**	**NSR Royalty**	**USD**	**CAD**
2020	1.5	0.5	-	1.70	0.45	-	4.2	**5.8**
2021	1.5	0.5	-	1.00	1.00	0.6	4.6	**6.4**
2022	1.5	0.5	-	1.67	0.75	0.6	5.0	**7.0**
2023	1.0	-	-	1.67	0.25	2.0	4.9	**6.9**
2024	-	-	-	1.67	-	2.0	3.6	**5.1**
Total	**5.5**	**1.5**	**-**	**7.71**	**2.45**	**5.2**	**22.3**	**31.2**

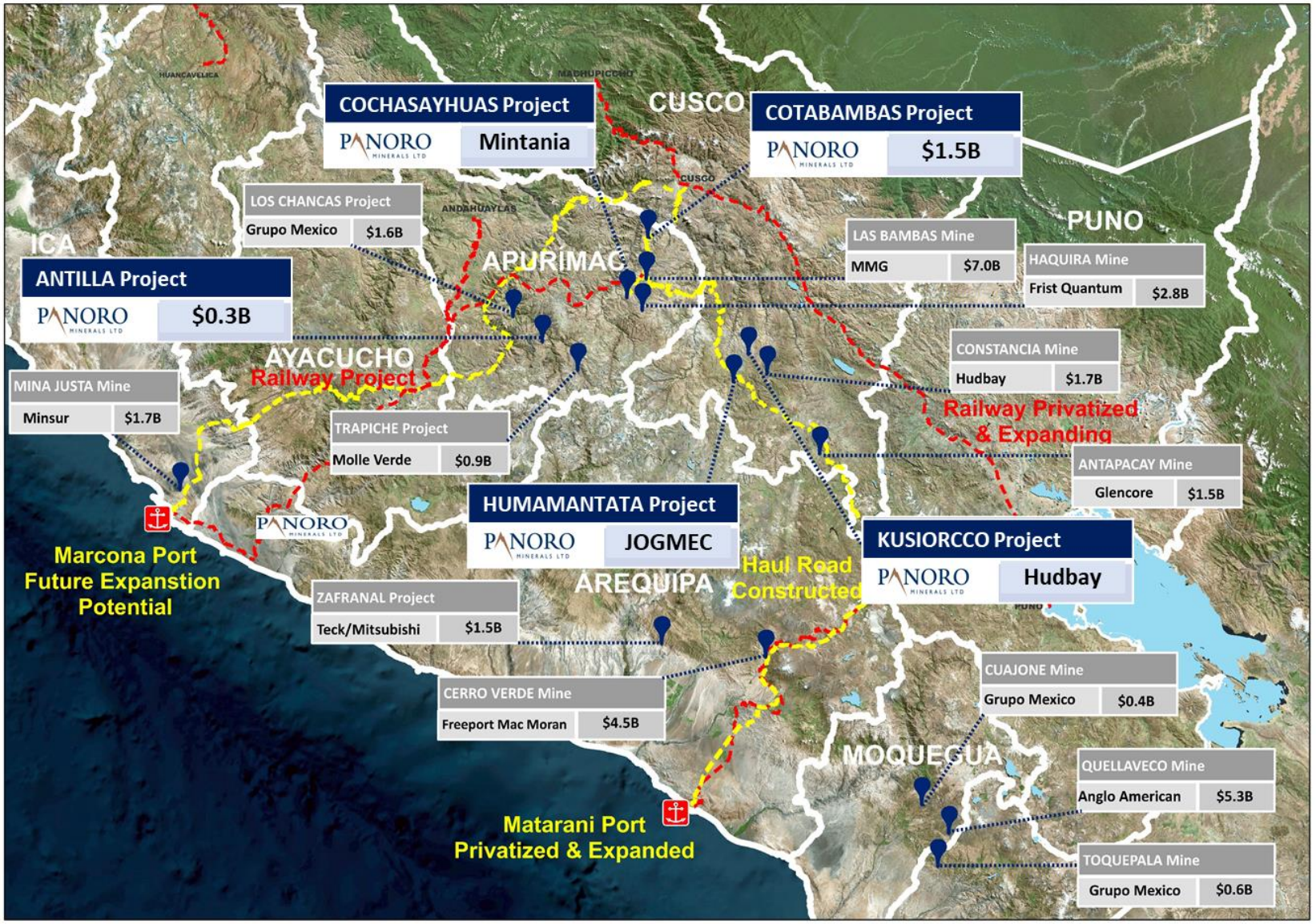
Capital Structure & Share Performance

Tickers	**TSX-V:PML** BVL:PML BORSE:PZM OTC:POROF
Share Price	$0.12
52 Week Low-High	$0.07 - $0.17
Shares Issued	263.8M
Options	16.2M
Fully Diluted	280.0M
Market Capitalization	
Undiluted	$32.0M
Fully diluted	$34.0M

24 Month Chart

Source: Barchart.com

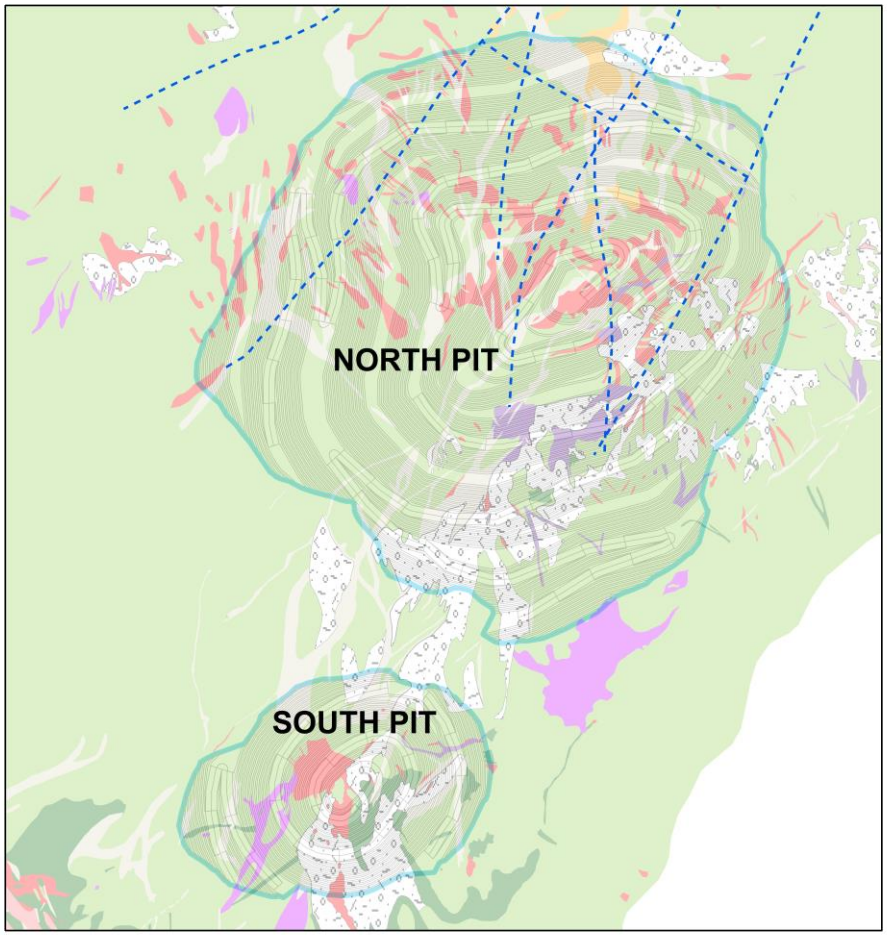
Peru's Southern Copper Cluster



Cotabambas Project Resource

Company	Year	Drill Holes	Metres
Antofagasta	1995 to 200	24	8,538
CDLM	2002 to 2007	10	3,252
Panoro	2007 to 2012	29	17,785
Panoro	2012 to 2013	81	40,467
Panoro	2013 to 2014	11	4,946
Panoro	2017 to 2018	36	8,805
Total		**134**	**83,793**

Resource Category	Zone	Million tonnes	Cutoff Grade % Cu_{eq}	Cu %	Au g/t	Ag g/t
Indicated	Hypogene	84.2	0.20	0.37	0.21	2.73
	Supergene	8.9	0.20	0.73	0.31	3.07
	Oxide Cu-Au	23.8	0.20	0.49	0.24	2.63
	Oxide Au	0.2	0.20	-	0.66	3.74
	Total	**117.1**	**0.20**	**0.42**	**0.23**	**2.74**
Inferred	Hypogene	521	0.20	0.29	0.18	2.41
	Supergene	7.4	0.20	0.73	0.18	1.93
	Oxide Cu-Au	75.8	0.20	0.41	0.15	1.82
	Oxide Au	1.2	0.20	-	0.61	3.27
	Total	**605.3**	**0.20**	**0.31**	**0.17**	**2.33**



Source: April 2015 NI 43-101 Technical Report prepared by Amec Foster Wheeler & Tetra Tech

Luis Vela, Vice President of Exploration for Panoro and a "qualified person" under National Instrument 43-101, has reviewed and approved the scientific and technical information

Cotabambas PEA Estimates

KEY PROJECT PARAMETERS *(IN USD CURRENCY)*			COTABAMBAS[2] CU/AU/AG PROJECT (GROWTH TARGETS)
Mill Feed, life of mine		million tonnes	483.1
Mill Feed, daily		tonnes	80,000
Strip Ratio, life of mine		waste: process feed	1.25 : 1
After Tax @ PEA Prices[2]	**$NPV_{7.5\%}$**	million USD	683
	IRR	%	16.7
	Payback	years	3.6
Annual Average Payable Metals	**Cu**	thousand tonnes	70.5
	Au	thousand ounces	95
	Ag	thousand ounces	1,018
	Mo	thousand tonnes	-
Initial Capital Cost		million USD	1,533

1. Values in USD
2. At PEA commodity prices; Cu = $3.00/lb, Au = $1,250/oz, Ag = $18.50/oz

Luquman Shaheen; President & CEO, and Luis Vela, Vice President of Exploration for Panoro and a "qualified person" under National Instrument 43-101, have reviewed and approved the scientific and technical information

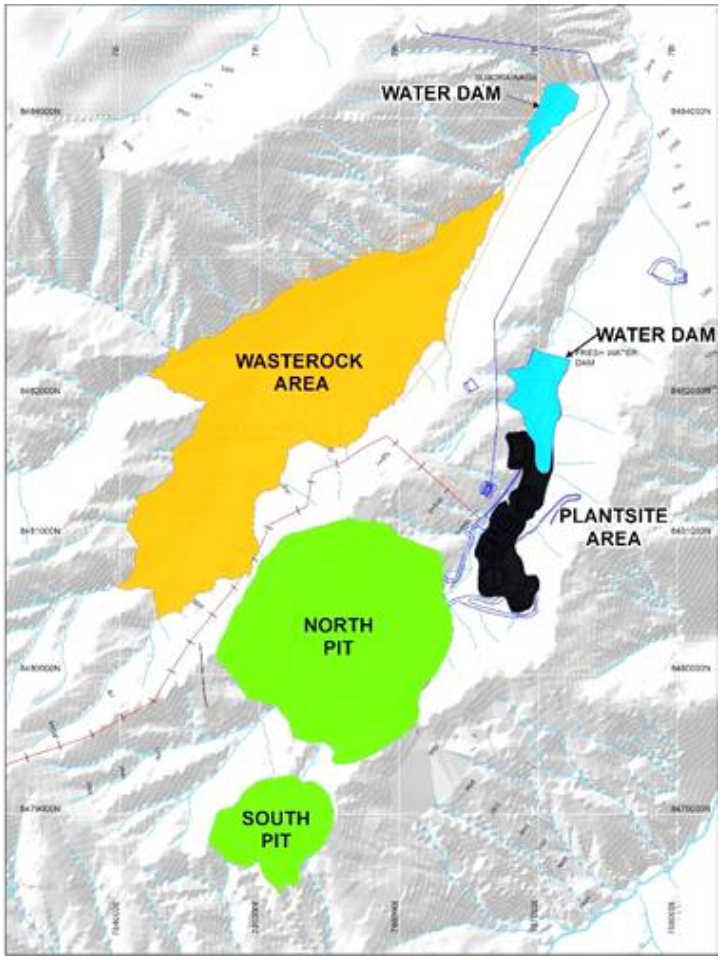
Cotabambas Project
Targeting Growth

SEPTEMBER 2015 PEA

Before Tax	Cash costs, nets of by products credits
$1,052M NPV 20.4 % IRR 3.2 Year Payback	C1 $1.22/lb Cu C2 $1.94/lb Cu

After Tax	Annual payable metals
$683M NPV 16.7 % IRR 3.6 Year Payback	155 M lbs Cu 95 k oz Au 1,018 k oz Ag

Life of Mine Payable Metals	Clean Concentrate
2.6 B lbs Cu 1.6 M oz Au 17 M oz Ag	27% Cu 11 g/t Au 134 g/t Ag



Note: @ Cu = $US3.00/lb, Au = $US1,250/oz, Ag = $US18.50/oz

Luis Vela, Vice President of Exploration for Panoro and "qualified persons" under National Instrument 43-101, have reviewed and approved the scientific and technical information

Cotabambas Project - Targets
Project Enhancements

1 Resource Growth

Maria Jose Target
20 drill holes – 6,096.85 meters

Petra- David Target
9 drill holes – 1,235.7 meters

Chaupec Target
5 drill holes – 992.7 meters

Guaclle Target
drilling to come

Jean-Louis Target
drilling to come

2 Metallurgy

Flotation - Transition & Oxide Zones

PEA Metallurgical Recoveries			
Mineralization	Recovery		
	Cu %	Au %	Ag %
Mixed Oxide Cu-Au	60.0 +5.3	55.0 +3.0	0.0 +55.0
Oxide High Cu-Au	0.0 +47.3	65.0 +3.5	0.0 +40.0

Leaching - Oxide Zones

PEA Metallurgical Recoveries			
Mineralization	Recovery		
	Cu %	Au %	Ag %
Oxide High Cu-Au	0.0 +60.0	0.0 0.0	0.0 0.0

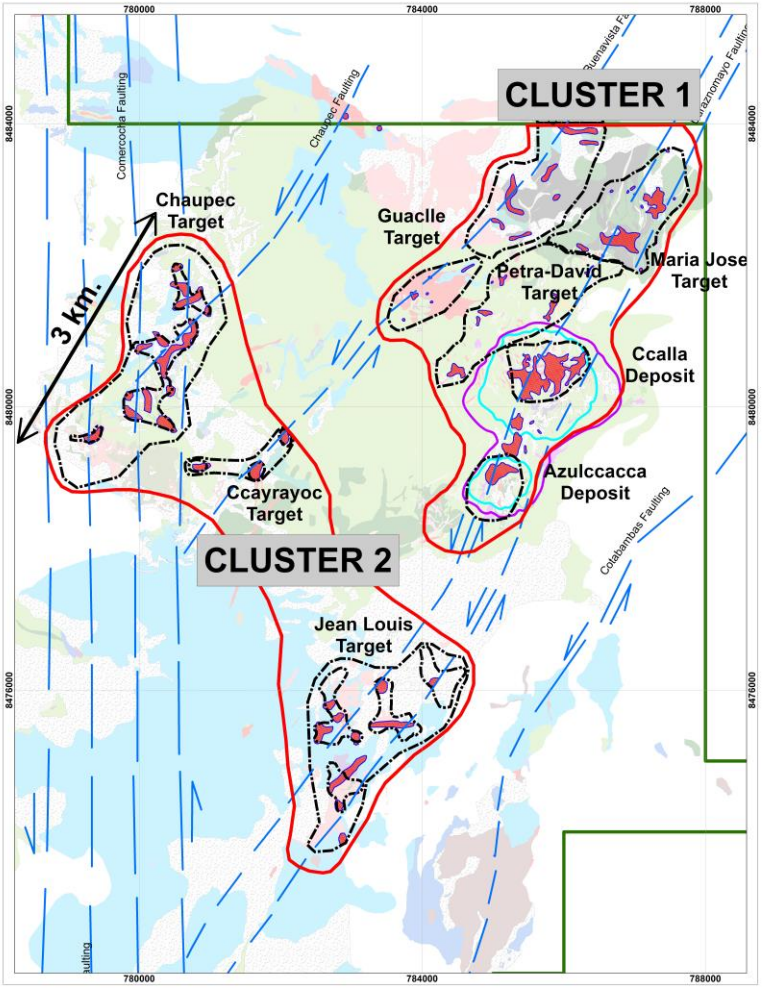
3 Commodity Price

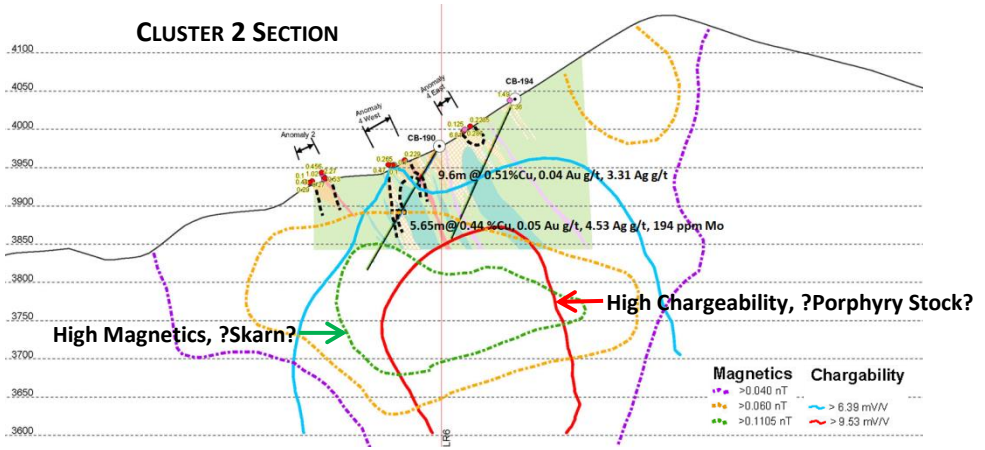
Cu + 3%

Au + 56%

Au + 46%

Cotabambas Project Cluster 1 and Cluster 2
Project Scale Expansion Potential





Drillhole	From	To	Length (m)	% Cu	Au g/t	Ag g/t	% Mo	% Pb	%Zn
CB-190	40.45	50.05	9.60	0.51	0.04	3.31	8	0.016	0.0230
Include	45.00	50.05	5.05	0.80	0.06	4.91	10	0.026	0.0300
" "	111.45	117.10	5.65	0.44	0.05	4.53	194	0.004	0.0160
Include	111.45	113.00	1.55	1.26	0.03	10.29	238	0.002	0.0100
CB-191	106.4	116.5	10.10	0.02	0.37	8.32	16	0.003	0.0070
Include	106.4	110.5	4.10	0.03	0.52	14	32	0.0081	0.0129
include	112.5	116.5	4.00	0.02	0.40	6.43	6	0.0003	0.0028
CB-192	39.40	53.20	13.80	0.16	0.02	3.50	7	0.038	0.060
Include	45.20	48.10	2.90	0.37	0.03	5.60	6	0.004	0.0320
" "	66.00	66.60	0.60	0.89	0.02	13.80	12	0.099	0.0640
" "	89.30	90.10	0.80	0.40	0.01	5.90	6	0.0223	0.0156
CB-193	15.20	32.80	17.60	0.42	0.05	24.20	12	0.067	0.38
Include	15.20	20.40	5.20	0.67	0.08	37.29	12	0.12	0.41
Include	26.85	32.80	5.95	0.59	0.08	34.97	14	0.074	0.39

Cotabambas Project Potential
Heap Leach SX/EW

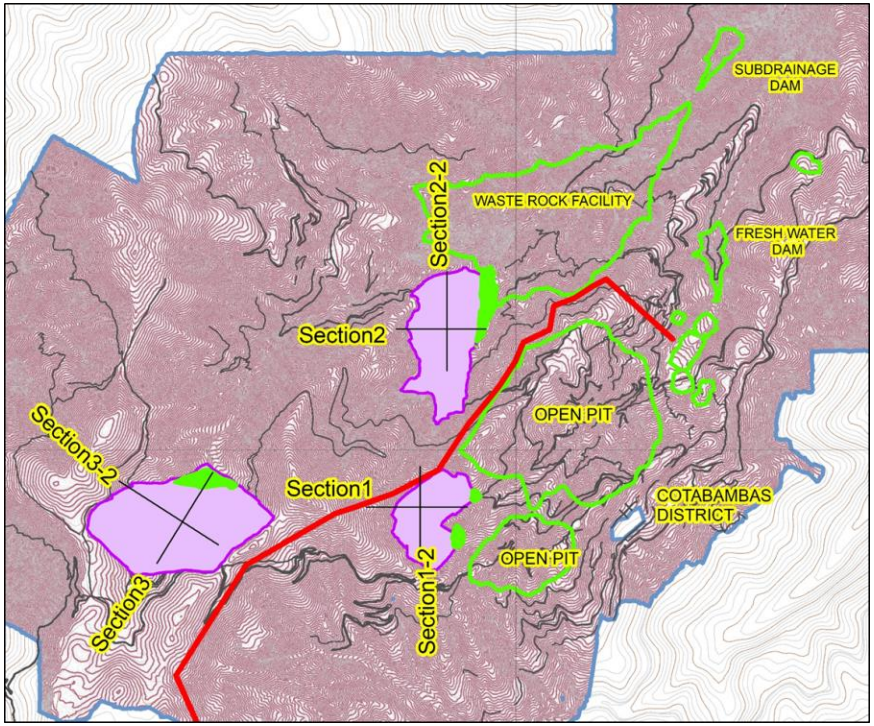


Table: Mineral Resources, Tetra Tech, October 2013

Resources Category	Zone	Cut-off Grade % CuEq	Million Tonnes	Cu (%)	Au (g/t)	Ag (g/t)	Mo (%)	Cu (Blb)	Au (Moz)	Ag (Moz)	Mo (Mlb)
Indicated	Hypogene Sulphide	0.2	84.2	0.37	0.21	2.73	0.0018	0.69	0.58	7.39	3.43
	Supergene Sulphide	0.2	8.9	0.73	0.31	3.07	-	0.14	0.09	0.88	0.01
	Oxide Copper-Gold	0.2	23.8	0.49	0.24	2.63	-	0.26	0.18	2.01	0.01
	Oxide Gold	Na	0.2	-	0.66	3.74	-	-	0	0.02	-
	Total		117.1	0.42	0.23	2.74	0.0013	1.09	0.86	10.3	3.45
Inferred	Hypogene Sulphide	0.2	521	0.29	0.18	2.41	0.0021	3.36	2.94	40.35	24.22
	Supergene Sulphide	0.2	7.4	0.78	0.18	1.93	0.0007	0.12	0.04	0.46	0.11
	Oxide Copper-Gold	0.2	75.8	0.41	0.15	1.82	0.0008	0.68	0.37	4.44	0.5
	Oxide Gold	Na	1.2	-	0.61	3.27	-	-	0.02	0.12	-
	Total	0.2	605.3	0.31	0.17	2.33	0.0019	4.16	3.38	45.37	24.83

99.6 Mt @ 0.42 % Cu, 0.21 g/t Au, 2.43 g/t Ag
Assuming same cutoff as for flotation

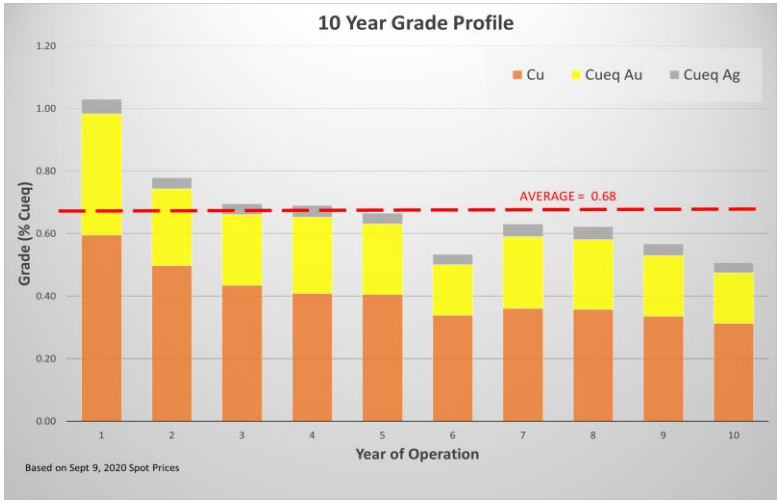
*Mineral Resources have an effective date of June 20, 2013 and were estimated by Qualified Person Robert Morrison, P.Geo. (APGO, 1839) . The estimate is based on 56,813 meters of drilling by Panoro and 9,923 meters of drilling from legacy campaigns. Copper equivalent (CuEq) is calculated using the equation: CuEq = Cu + 0.4422 Au + 0.0065*Ag. based on the differentials of long range metal prices net of selling costs and metallurgical recoveries for gold and copper and silver. Mineralization would be mined from open pit and treated using conventional flotation and hydrometallurgical flow sheets. Rounding in accordance with reporting guidelines may result in summation differences. CuEq cut-offs were used to report almost all of the resource. These cut-offs are a function of metal price and recoveries. In the in situ resource, estimated gold, silver and molybdenum are then converted to US dollars and combined. The combined funds are re-converted to copper and added to the in situ copper values. The following metals prices are used: copper - $US3.20/lb; gold - $US1.350/troy oz; silver - $US23.00/troy oz; molybdenum – $US12.50/lb. The following metal recoveries were applied to the in situ resource: molybdenum – 40%; gold – 64%; silver - 63%. As the resource is reported as in situ, no recovery is applied to copper.*

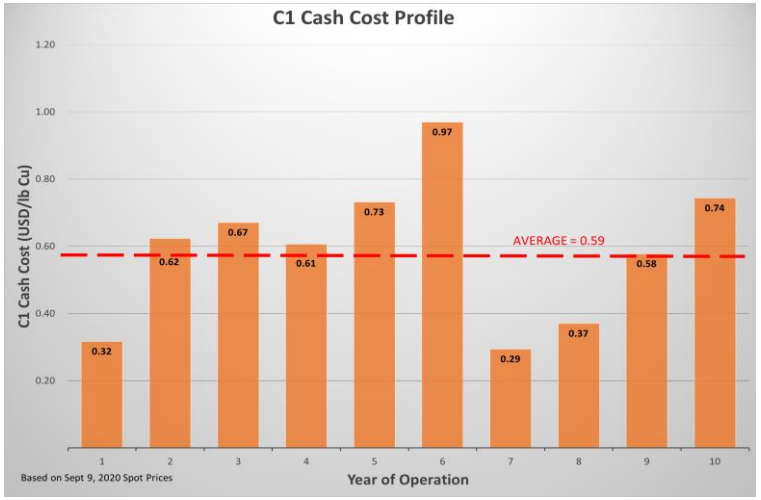
Cotabambas Project Economics Enhanced
September 9, 2020 Spot Prices

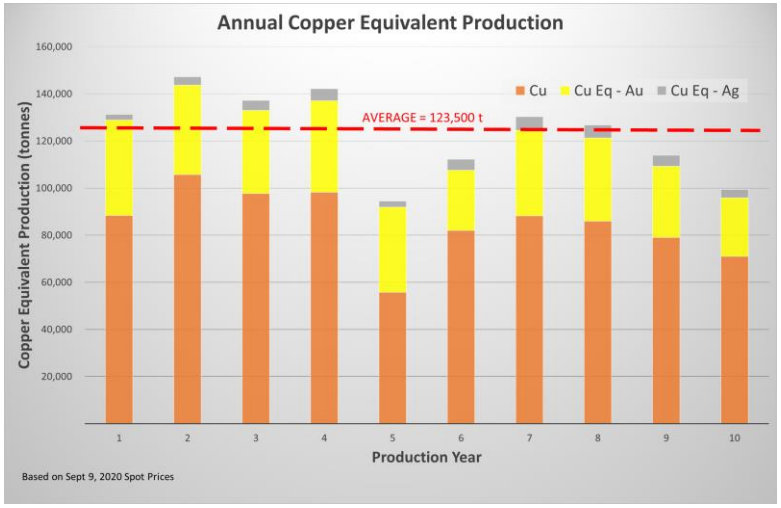
Cotabambas Projects Economics Enhanced at September 9, 2020 Spot Prices				
After Tax Metrics		September 9, 2020 Spot Metal Price	PEA Metal Price Assumptions	Improvement From PEA
Net Present Value	million USD	$1,220	$683	79% ↑
IRR	%	22.8%	16.7%	37% ↑
Payback	years	2.8	3.6	22% ↑
C1 Cash Cost	USD per lb Cu	$0.64	$1.22	47% ↑
Breakeven Cu Price	USD per lb Cu	$1.35	$1.91	29% ↑
Cu Spot Price	USD/lb	$3.07	$3.00	2% ↑
Au Spot Price	USD/oz	$1,946	$1,250	56% ↑
Ag Spot Price	USD/oz	$26.89	$18.50	45% ↑

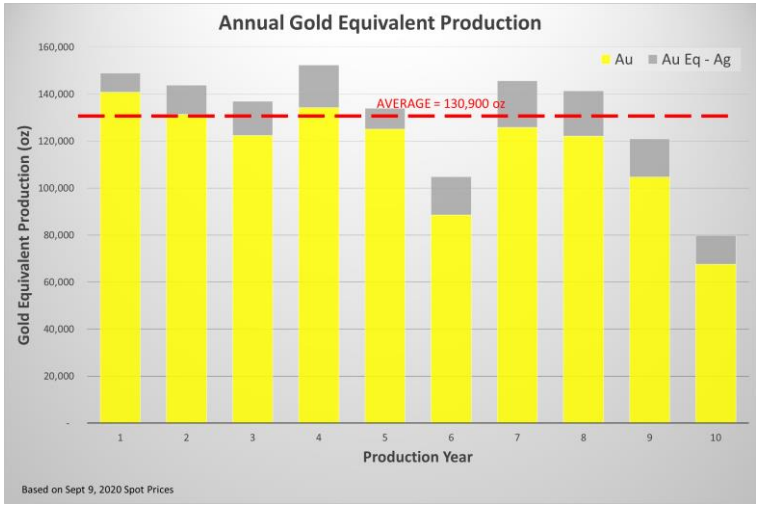
Luquman Shaheen; President & CEO, and Luis Vela, Vice President of Exploration for Panoro and a "qualified person" under National Instrument 43-101, have reviewed and approved the scientific and technical information

Cotabambas Project Leverage to Precious Metals









Antilla Project Mineral Resources

Mineral Resources for the Antilla Deposit (Tetra Tech, October 19, 2015)

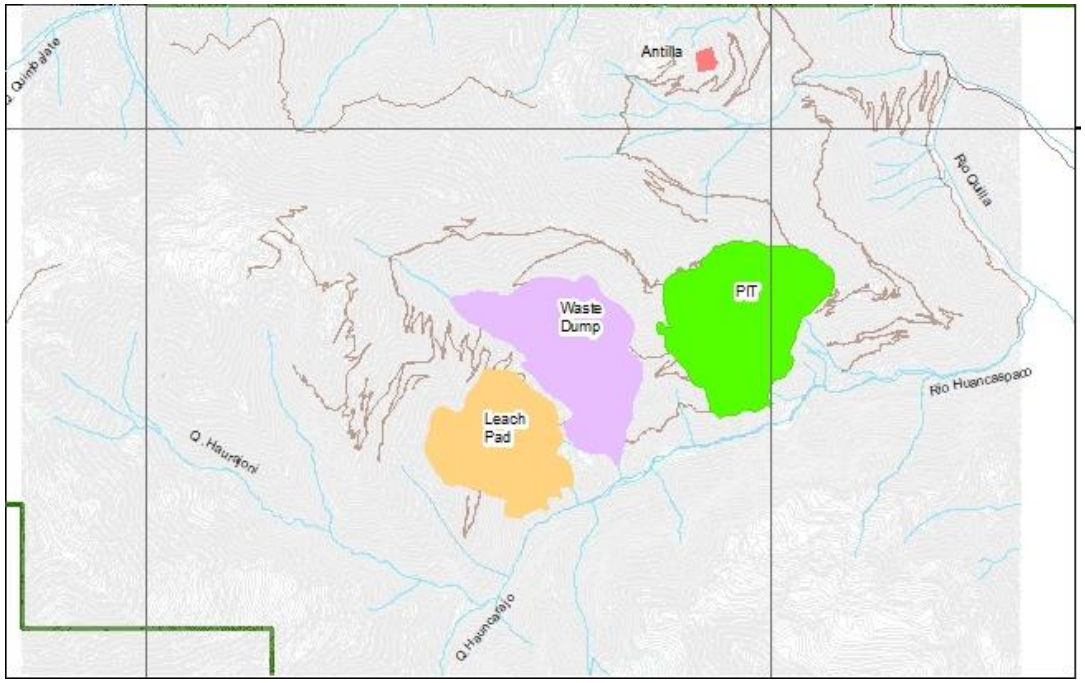
Domain	Quantity Grade			
	'000 tonnes	Cu %	Mo %	CuEq%
Indicated*				
Overburden/Cover	5,600	0.25	0.01	0.28
Leach Cap	13,400	0.25	0.01	0.27
Supergene	168,900	0.41	0.01	0.42
Primary Sulphides	103,900	0.24	0.01	0.26
Total Indicated	**291,800**	**0.34**	**0.01**	**0.36**
Inferred*				
Overburden/Cover	500	0.22	0.009	0.24
Leach Cap	13,400	0.21	0.008	0.22
Supergene	25,900	0.34	0.008	0.36
Primary Sulphides	50,700	0.24	0.007	0.25
Total Inferred	**90,500**	**0.26**	**0.007**	**0.28**

*Mineral resources are not mineral reserves and have not demonstrated economic viability. All figures have been rounded to reflect the relative accuracy of the estimates. Reported at a cut-off grade of 0.175 CuEq%; assuming an open pit extraction scenario, a copper price of US$3.25 per pound and a molybdenum price of US$ 9.00 per pound, and a metallurgical recovery of 90% for copper and 80% for molybdenum.

The mineral resource model was prepared by Tetra Tech and considers 88 core boreholes (14,293 metres) drilled from 2003 to 2010 by Panoro and the previous operators of the property.

Antilla Project
Heap Leach SX/EW Project

Initial Capital	Pretax	After Tax	Cash Costs	LOM Cashflow
$US 250 M	NPV $US 520 M IRR 34.7% PAYBACK 2.6	NPV $US 305 M IRR 25.9% PAYBACK 3.0	C1 $1.51/lb C2 $ 1.82/lb	$US 1.0 B pretax $US 669 M after tax



Antilla Initial CAPEX (US$ millions)	
Item	**Cost**
Mine Equipment	$0
Mine Development	$41
Process Plant	$95
Tailings Storage Facility	$0
Infrastructure	$42
Subtotal	**$178**
Owners Cost	$8
Indirect Costs	$14
Subtotal	$200
Contingencies	$50
Total Initial Capital Cost	**$250**

NOTE: @ Cu = $US3.05 long-term Cu price/lb

Luis Vela, Vice President of Exploration for Panoro and a "qualified person" under National Instrument 43-101, has reviewed and approved the scientific and technical information

Antilla Project
Heap Leach SX/EW PEA Summary

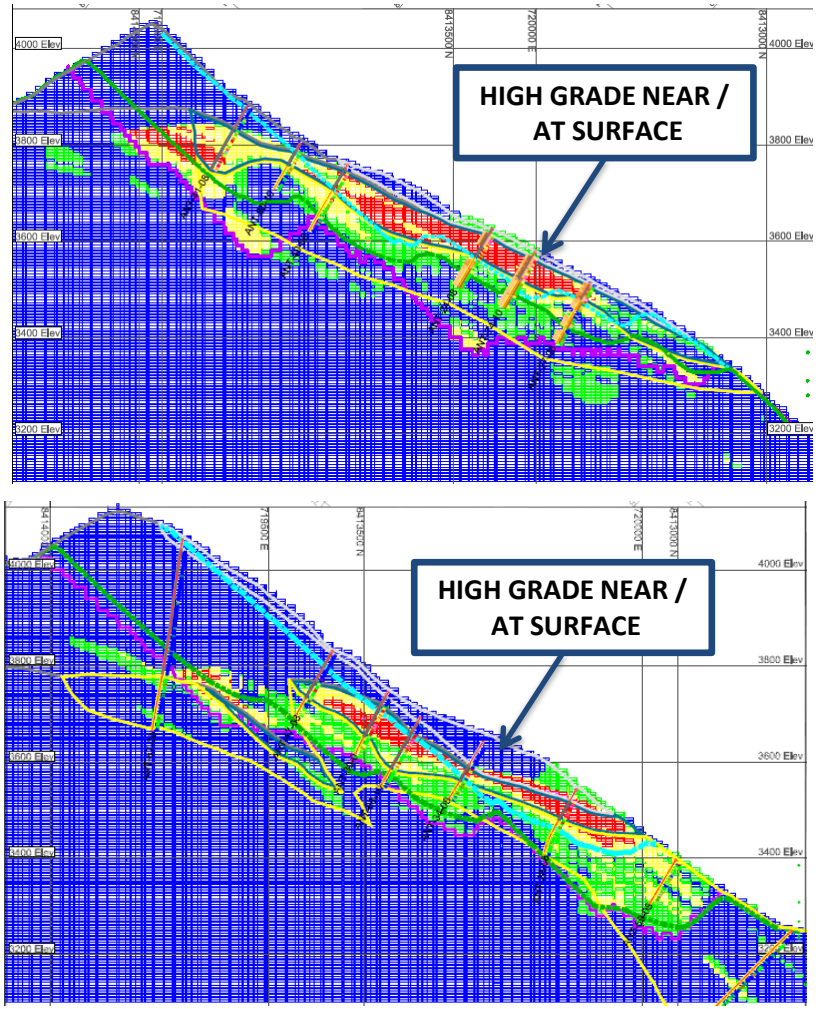
PEA DESIGN PARAMETERS

- 119 Mt Mill Feed
  20,000 tpd
  17 year LOM
- 1.38 Strip Ratio
  163 Mt wasterock
- 0.44% Cu Grade
  72.5% in 200 Days
- Payable Metal
  21 Kt/year Cu
  Cu Cathode
- No Tailings Dam
- LOM Payable Metal
  358 Kt Cu Cathode

Column Tests
79.9%
in 150 Days

=

Potential 11% increase in Production and 30% increase in Value



Note: @ Cu = $US3.05 long-term Cu price

Luis Vela, Vice President of Exploration for Panoro and a "qualified person" under National Instrument 43-101, has reviewed and approved the scientific and technical information

Antilla Project PEA Estimates

KEY PROJECT PARAMETERS *(IN USD CURRENCY)*			ANTILLA[2] CU PROJECT (HEAP LEACH SX/EW)
Mill Feed, life of mine		million tonnes	118.7
Mill Feed, daily		tonnes	20,000
Strip Ratio, life of mine		waste: process feed	1.38 : 1
After Tax @ PEA Prices[2]	$NPV_{7.5\%}$	million USD	305
	IRR	%	25.9
	Payback	years	3.0
Annual Average Payable Metals	Cu	thousand tonnes	21.0
	Au	thousand ounces	-
	Ag	thousand ounces	-
	Mo	thousand tonnes	-
Initial Capital Cost		million USD	250

1. Prices in USD
2. At PEA commodity prices; long-term Cu = $3.05/lb

Luquman Shaheen; President & CEO, and Luis Vela, Vice President of Exploration for Panoro and a "qualified person" under National Instrument 43-101, have reviewed and approved the scientific and technical information

Antilla Project Growth Potential

KEY PROJECT PARAMETERS *(IN USD CURRENCY)*			HEAP LEACH PROJECT[2]	HEAP LEACH GROWTH POTENTIAL[3]
Mill Feed, life of mine		million tonnes	118.7	171.1
Mill Feed, daily		tonnes	20,000	35,000
Strip Ratio, life of mine		waste: process feed	1.38 : 1	1.77 : 1
After Tax @ PEA Prices	$NPV_{7.5\%}$	million USD	305	499
	IRR	%	25.9	36.9
	Payback	years	3.0	2.2
Annual Average Payable Metals	Cu	thousand tonnes	21.0	38.5
	Au	thousand ounces	-	-
	Ag	thousand ounces	-	-
	Mo	thousand tonnes	-	0.9
Initial Capital Cost		million USD	250	327

1. Prices in USD
2. At PEA commodity prices; long-term Cu = $3.05/lb
3. Conceptual level estimate, Non 43-101

Luquman Shaheen; President & CEO, and Luis Vela, Vice President of Exploration for Panoro and a "qualified person" under National Instrument 43-101, have reviewed and approved the scientific and technical information

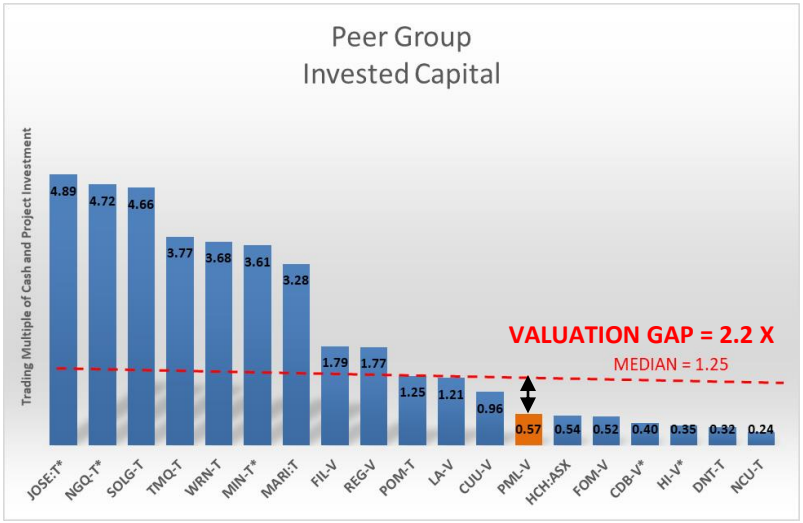
Antilla Project
Heap Leach SX/EW

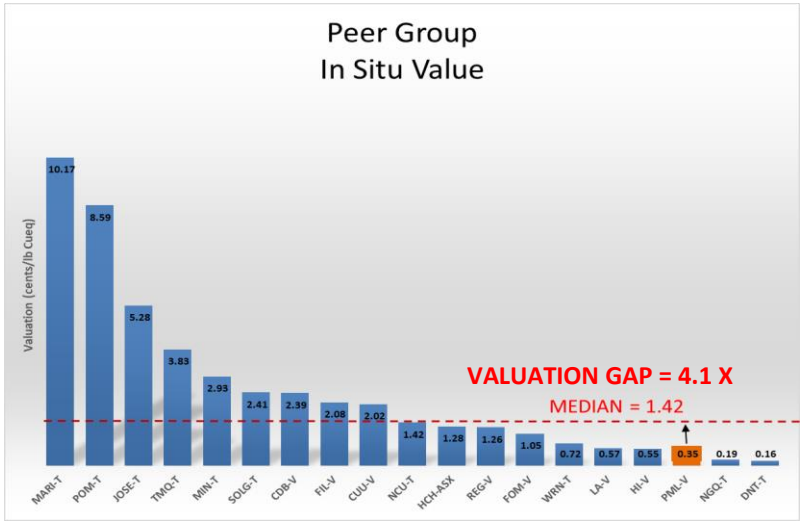
Optimized Mine Plan	Increased Grade 0.31% to 0.43%	Secondary Sulphides 117 Mt, 98% of feed	Indicated Category 95% of mine plan	
Reduced Throughput	Cathode Production 21.0 Kt/yr	Strip Ratio 1.38	Mine Plan 20,000 tpd	Life of Mine 17 years
Lower Capital and Operating Costs	Cu Recovery 72.5% from leaching secondary Sulphides	Capital Cost reduced 59%	C1, C2 Costs Reduced 18-23%	
Eliminated Sustaining Capital Costs	No Tailings Dam	Use Contract Mine Fleet		
Maximized Project Cash Flows	After Tax NPV +36%	IRR + 72% Payback -27%	NPV/Capex > 1	Capital Intensity, lower quartile 5.41
Roadmap to Permit	Infill Drilling $ 2 million, 3 months	Feasibility Study $ 2 million, 7 months	Impact Assess & Approval $ 0.5 million, 22 months	

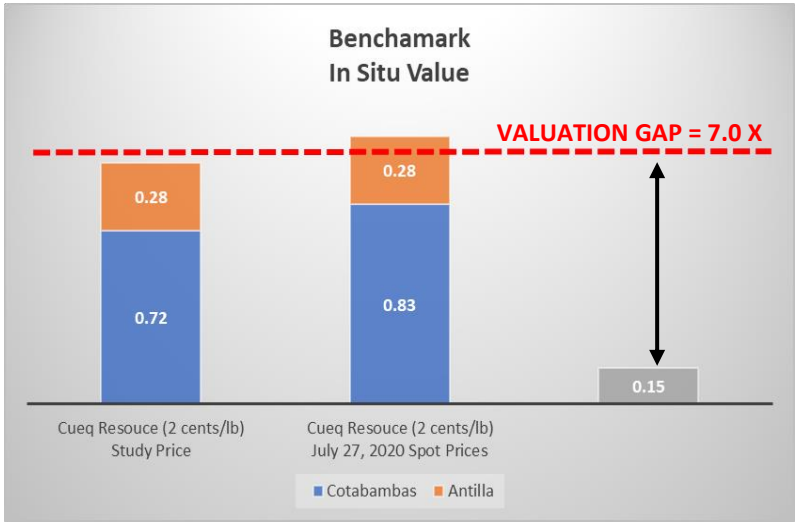
PML Project Investment as of YE 2019

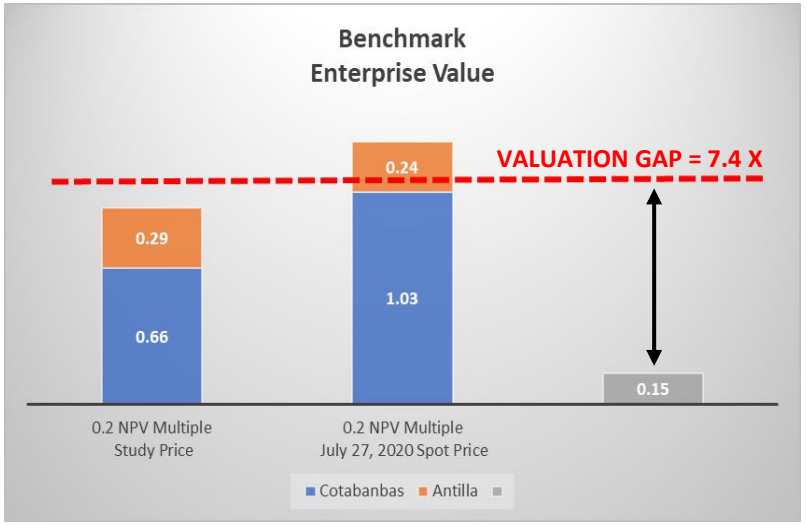
Project	Invested to Year End 2019 M$CAD	Status
Cotabambas	51.2	Resource estimate, PEA, growth targets
Antilla	17.5	Resource estimate, PEA, advanced metallurgy
Kusiorcco	1.3	Sold for cash + 2% NSR Royalty
Humamantata	1.7	JV with JOGMEC
Cochasayhuas	1.7	Sold for cash + 5% NSR Royalty
Promesa	1.8	Mapping, sampling, geophysics
Anyo	1.5	Mapping, sampling, geophysics
Total	**76.7**	

Panoro Minerals' Valuation Gaps

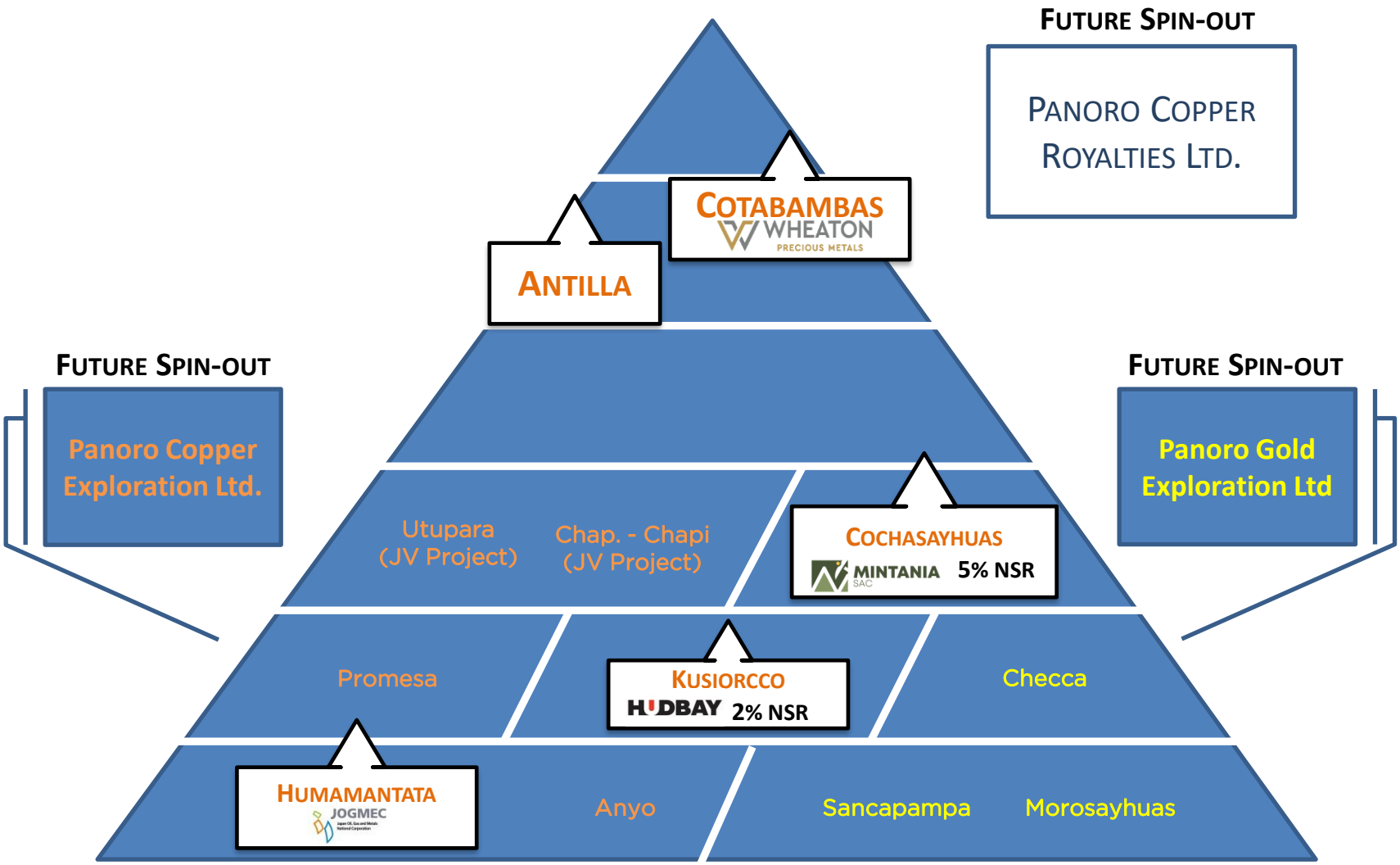








Future Copper & Gold Exploration Companies



Management & Directors – Peru Experience

Management

Luquman Shaheen, PEng, PE, MBA – President & Chief Executive Officer & Director
Over 27 years experience in mining sector, 20 years experience in Peru and Latin America

Shannon Ross, CPA,CA – Chief Financial Officer
Over 25 years experience in accounting and financial management in the mining sector

Yves Barsimantov – Vice President Operations & Peru General Manager
20 years management experience with Peruvian banking, fishing and mining sector

Luis Vela, P.Geo., MSc.Econ.Geology – Vice President Exploration
Over 25 years exploration experience in Peru and Chile mining sector

Directors

Augusto Baertl – Chairman
Over 50 years of experience in the Peruvian and International Mining Sector

William Boden, CPA,CA – Director
Former Chairman of First Coal Corporation

Ronald Hall – Director
Over 40 years of experience in the management, operation, evaluation and design of mining projects globally

Anthony Laub – Director
Partner at LQG Energy & Mining Consulting

Christian Pilon – Executive Director Peru – Director
Over 30 years of experience in applied geophysics and mining sector, resident in Peru

Christiaan Staargaard, MSc, PGeo – Director
Over 40 years experience in exploration including as a Director or Senior Officer of public companies since 1990

Lorne Torhjelm – Director
President RNJ Ventures

Panoro Minerals Highlights

Stable Funding

Year	Million $CAD
2020	5.8
2021	6.4
2022	7.0
2023	6.9
2024	5.1

Project Pipeline

Cotabambas Project
- Cu/Au/Ag
- PEA Complete
- Resource Growth

Antilla Project
- Cu
- PEA Complete
- Feasibility

Kusiorcco Project
- Cu
- Exploration Drilling

Humamantata Project
- Cu/Pb/Zn/Ag
- Early Stage Exploration

Cochasayhuas Project
- Au/ Ag
- Development Permitting

Strategic partners

WHEATON PRECIOUS METALS

HUDBAY

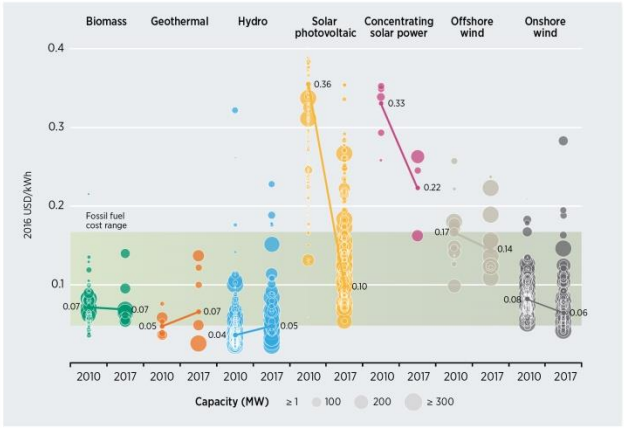
JOGMEC

MINTANIA SAC

Appendix

Towards a Renewable Energy Future
Emerging Security and Economics plus Environment

Figure ES.1 Global levelised cost of electricity from utility-scale renewable power generation technologies, 2010-2017

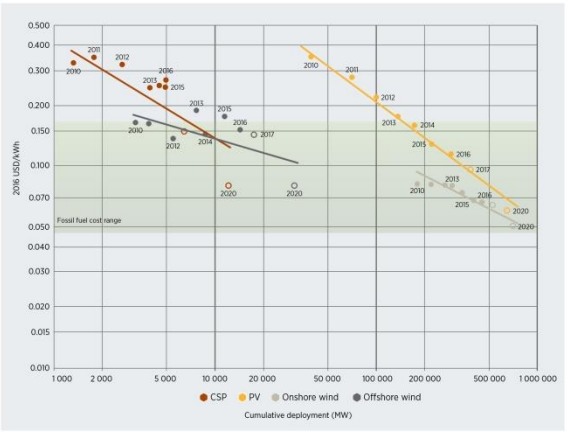


Source: IRENA Renewable Cost Database.

Note: The diameter of the circle represents the size of the project, with its centre the value for the cost of each project on the Y axis. The thick lines are the global weighted average LCOE value for plants commissioned in each year. Real weighted average cost of capital is 7.5% for OECD countries and China and 10% for the rest of the world. The band represents the fossil fuel-fired power generation cost range.

- Rapidly increasing investment and advancements in wind and solar technologies
- Five fold increase in new patents

Figure 2.14 Global weighted average CSP, solar PV, onshore and offshore wind project LCOE data to 2017 and auction price data to 2020, 2010-2020



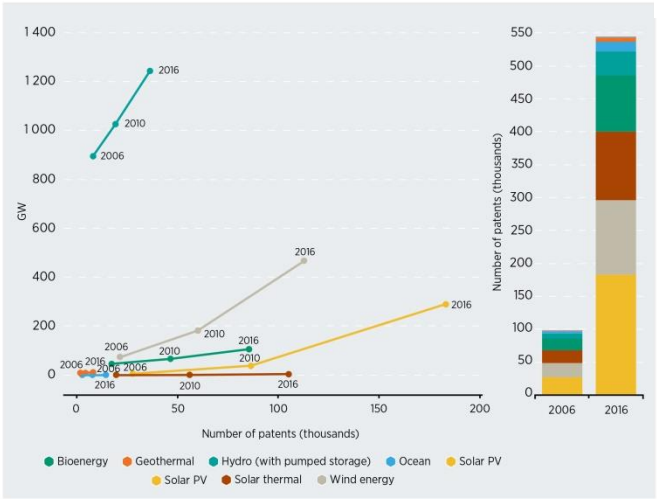
Based on IRENA Renewable Cost Database and Auctions Database; GWEC (2017), MAKE Consulting (2017a), SolarPower Europe (2017), and WindEurope (2017).

10. Global cumulative installed capacity of CSP is projected to be 12 GW by 2020, for offshore wind 31 GW, solar PV 650 GW and onshore wind 712 GW. This is based on IRENA (2017a), GWEC (2017), WindEurope (2017), SolarPower Europe (2017) and MAKE Consulting (2017a)

11. Extending the horizon to 2022 to take into account the likely commissioning of the DEWA project increases uncertainty over total deployment values, but would be unlikely to greatly alter the learning rate.

- Rapidly decreasing cost of generating wind and solar power
- Within the range of hydrocarbon based generation

Figure B2.1 Development of patent data for renewable energy technologies, 2010-2016

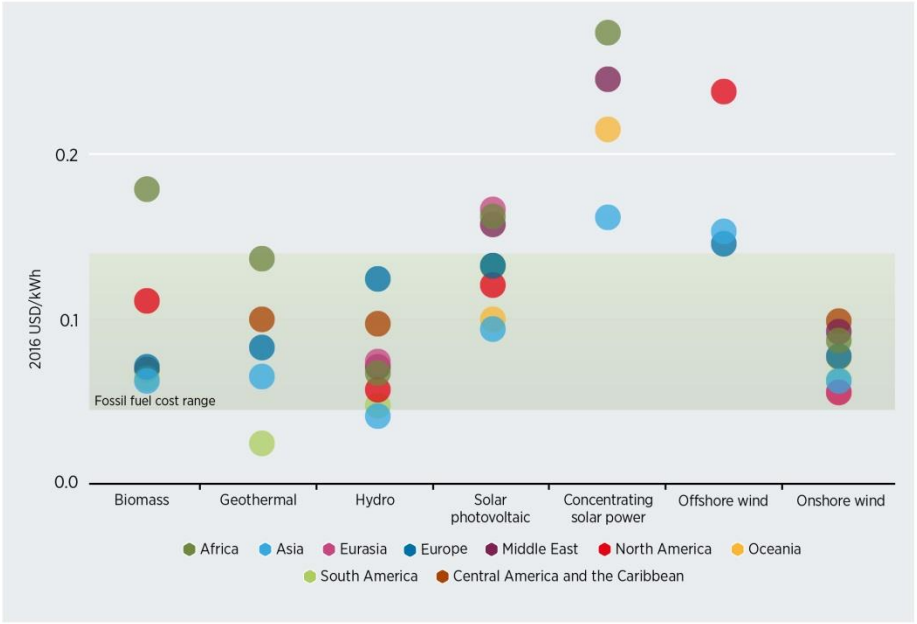


Based on INSPIRE web platform (www.irena.org) and IRENA (2017a).

- Wind and solar lead the way in achieving economies of scale

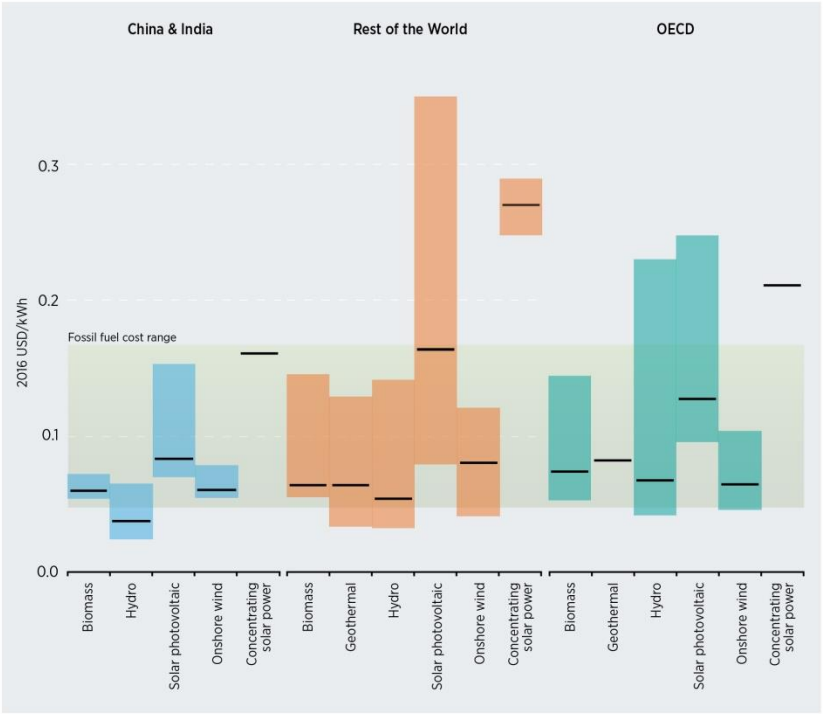
Emerging Security and Economics plus Environment
The Age of Electricity

Figure 2.3 Regional weighted average levelised cost of electricity by renewable power generation technology, 2016 and 2017



Source: IRENA Renewable Cost Database

Figure 2.11 Project LCOE ranges and weighted averages for China and India, OECD and rest of the world, 2016 and 2017

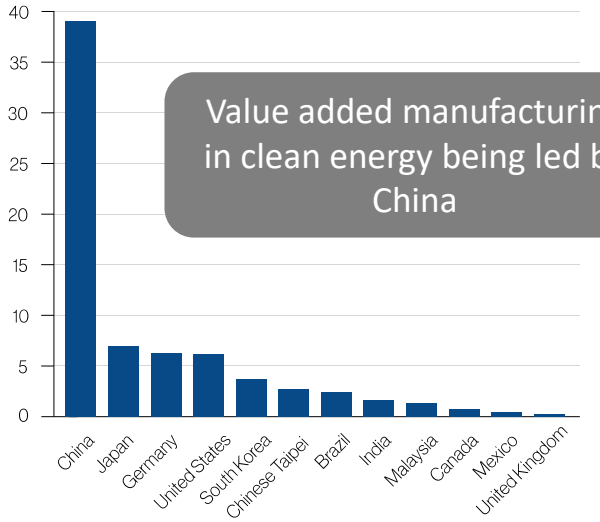


Source: IRENA Renewable Cost Database

- China, India and developing economies are leading the way
- Wind, solar and hydro generation achieving costs and scale advantages over hydrocarbons

Emerging Security and Economics plus Environment China and Developing World Motivated

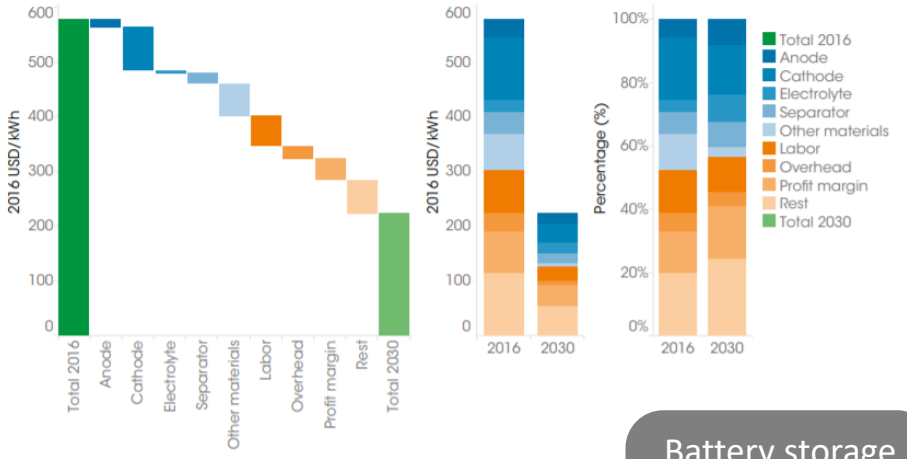
Figure 9. Clean energy manufacturing value added (2014, US$ billion)



Value added manufacturing in clean energy being led by China

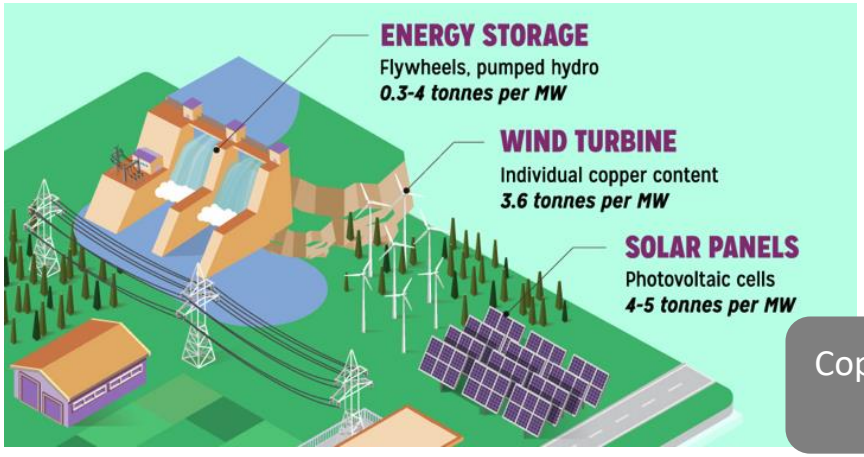
Source: Clean energy manufacturing analysis center.[76]

Figure ES7: Cost reduction potential by source of lithium iron phosphate battery energy storage systems, 2016 and 2030



Source: Irena Electricity Storage and Renewables: costs & markets to 2030

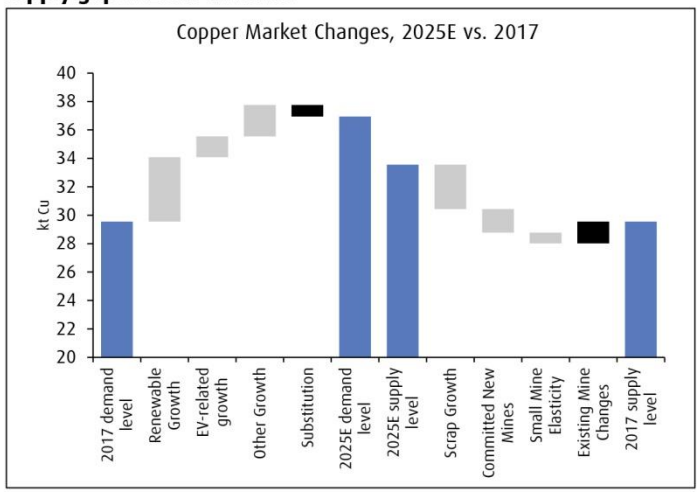
Battery storage costs to be reduced by +60%



Copper required for generation and storage of electric power

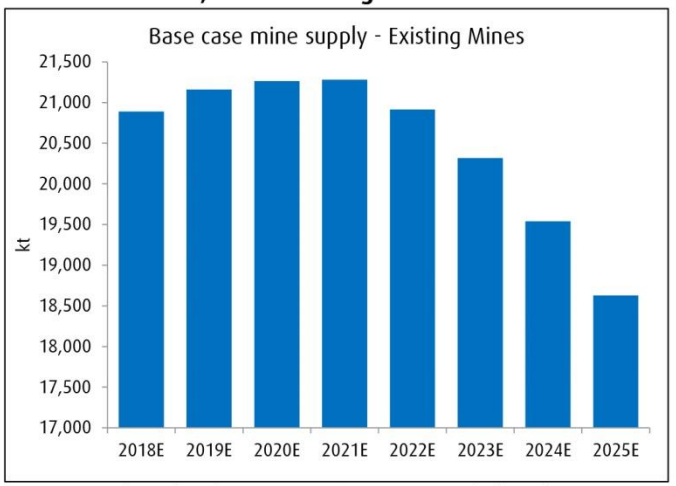
Copper Usage Increasing, Production Decreasing

Figure 2: There are a number of factors in determining the copper supply gap in 2025 onwards



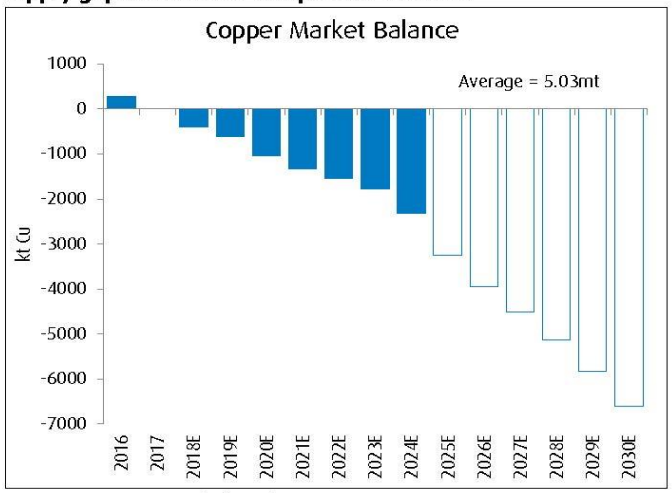
Source: Wood Mackenzie, Copper Alliance, BMO Capital Markets

Figure 9: Existing copper mines have been a drag on growth in the last decade, and will be again from 2021 onwards



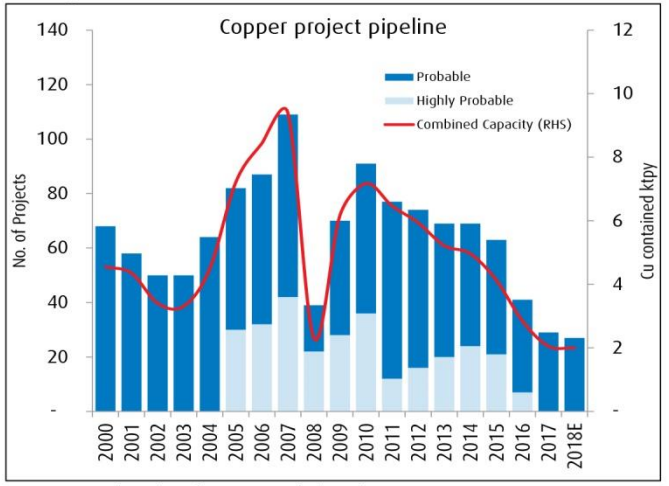
Source: Wood Mackenzie, Company Data, BMO Capital Markets

Figure 14: Everything else being even, we see an average supply gap in excess of 5mtpa over 2025-30



Source: ICSG, BMO Capital Markets

Figure 35: The copper project pipeline is now the leanest this century

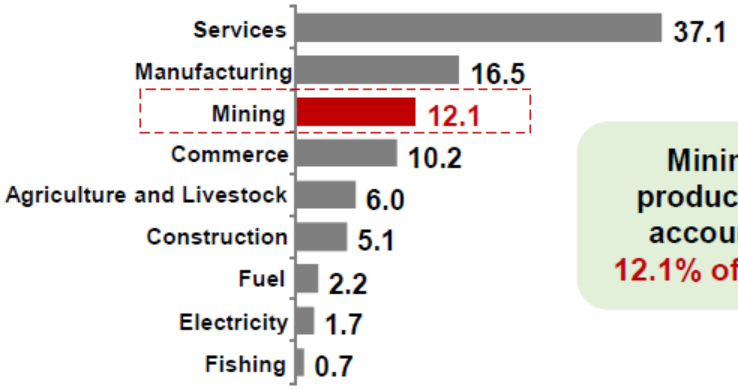


Source: Wood Mackenzie, BMO Capital Markets

Exports by Economic Sector

GDP Composition by Sector

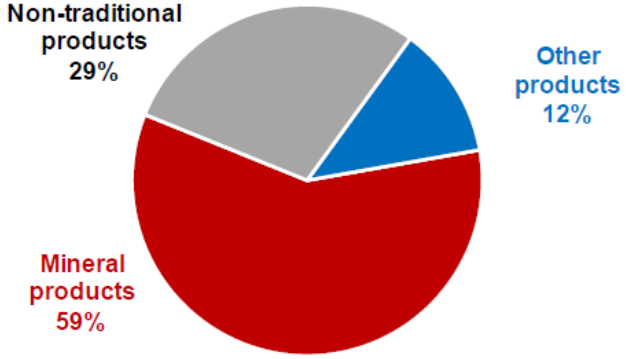
(Percentage, base year=2007)



Mining production accounts 12.1% of GDP

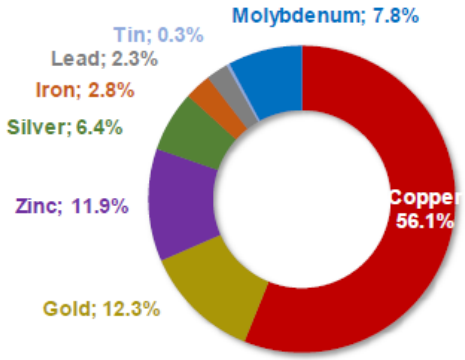
Total Exports, 2019

(Percentage)



Mining Production by Metals, 2019

(Percentage)

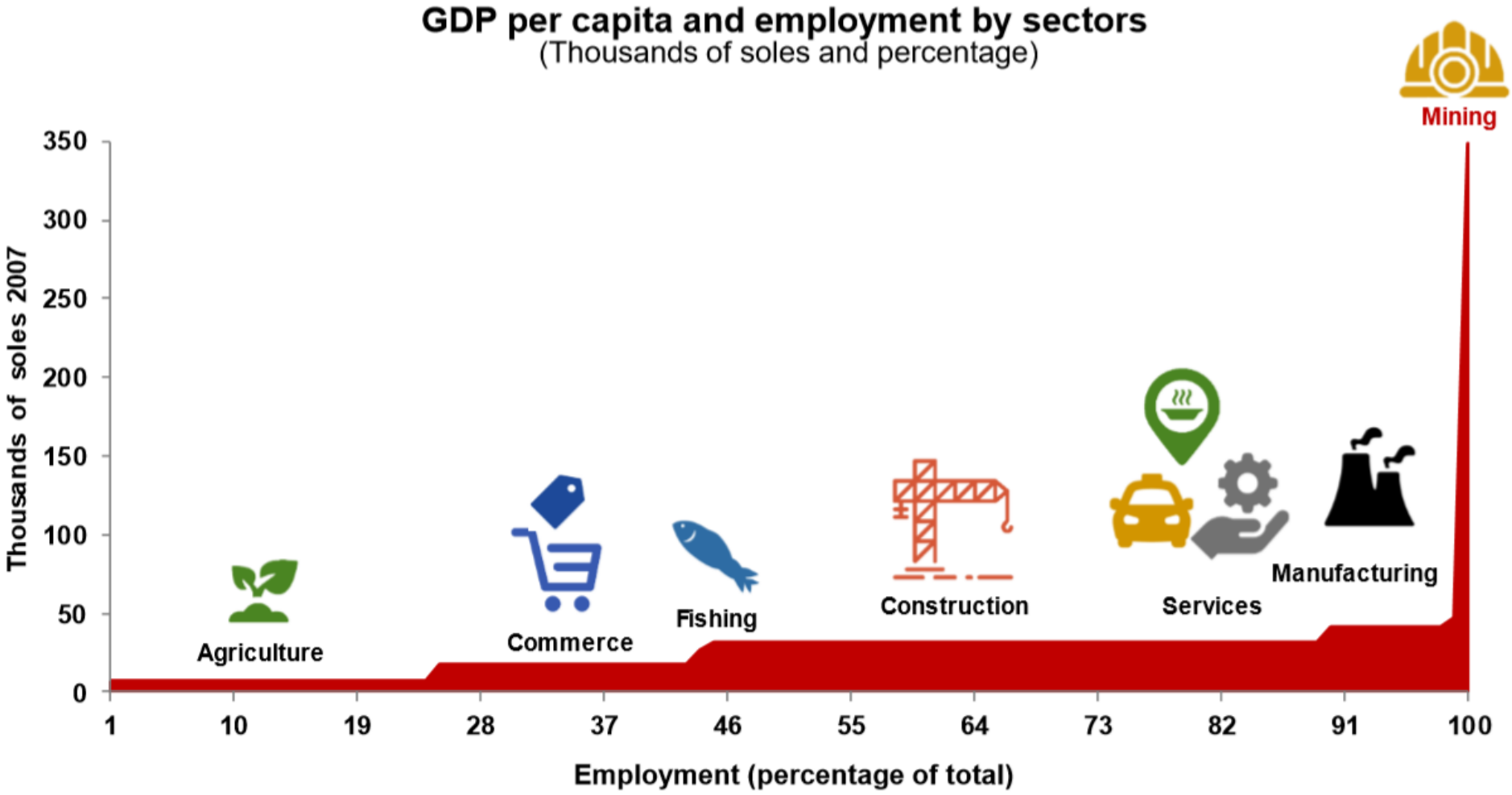


Copper production represents 56.1% of mining GDP

- In 2019, the mining exports reached approximately USD 28 billion in the context of lower export prices and supply shocks.

Source: Ministry of Energy and Mines of Peru (Minem), Central Bank of Peru (BCRP), National Institute of Statistics and Informatics (INEI), Ministry of Economy and Finance of Peru (MEF)

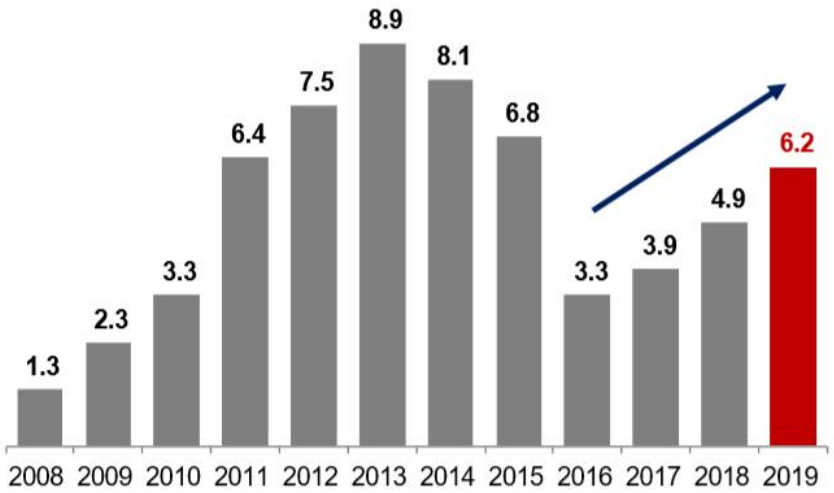
Mining Sector Economy



Source: Ministry of Energy and Mines of Peru (Minem), Central Bank of Peru (BCRP), National Institute of Statistics and Informatics (INEI), Ministry of Economy and Finance of Peru (MEF)

Foreign Direct Investment

Mining investment
(USD Billions)



Mining investment represents 15% of total private investment

Global mining companies have invested in Peru

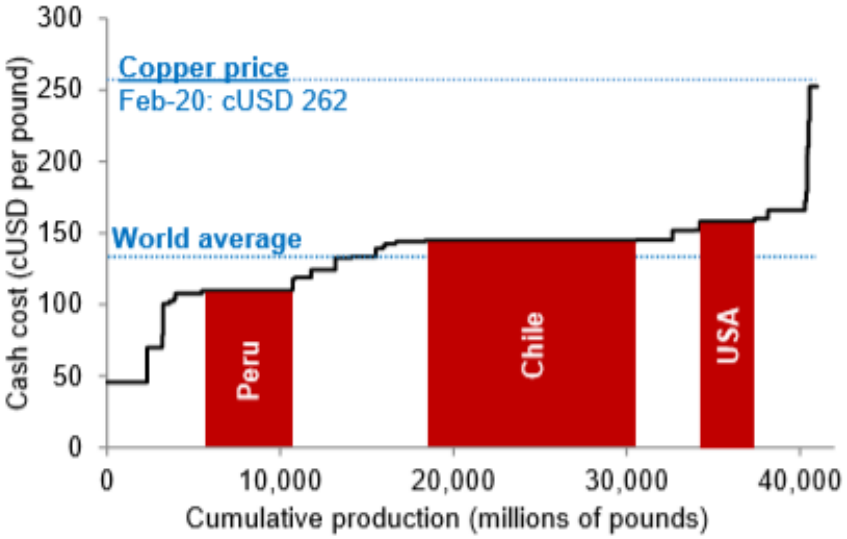
AngloAmerican
GLENCORE
BARRICK
CHINALCO
SOUTHERN COPPER
SOUTHERN PERU
HUDBAY
PAN AMERICAN SILVER
Teck

Source: Minem, BCRP

Low Operating Costs

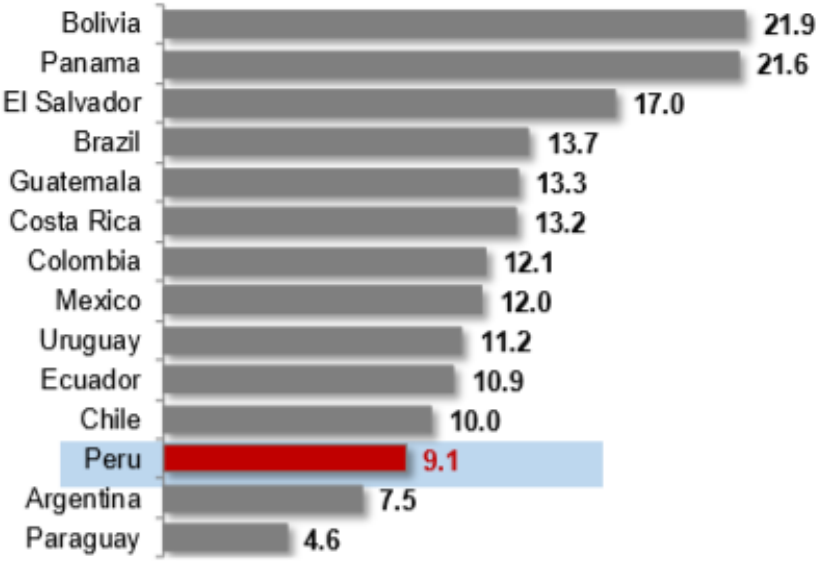
Cash cost of copper production, 2019

(cUSD per pound)



Electricity tariffs for industry, 3Q2019

(cUSD per KWh)



Average cash cost of copper in Peru is cUSD 110 per pound, below China, Chile and the United States.

Source: Supervisory Agency for Investment in Energy and Mining of Peru (Osinergmin), Wood Mackenzie

Peru Working on Mining Competitiveness

Monitoring and Improvement of Regulatory Framework

The government works constantly in the regulatory framework improvement in the mining sector

Prioritization of projects by Special Investment Monitoring team

Extension of the tax benefits for the mining and hydrocarbons exploring up to 2022

The creation of “Digital Single Window” in 2019 will allow to manage quickly and transparently all permits and licenses

Implementation of the “Regulatory Quality Analysis” to identify, simplify or remove the administrative procedures

Formation of the Advisory Commission for Mining Development

Closing Social Gaps

The government seeks the closing social gaps, with special attention to the surrounding zones to mining activities

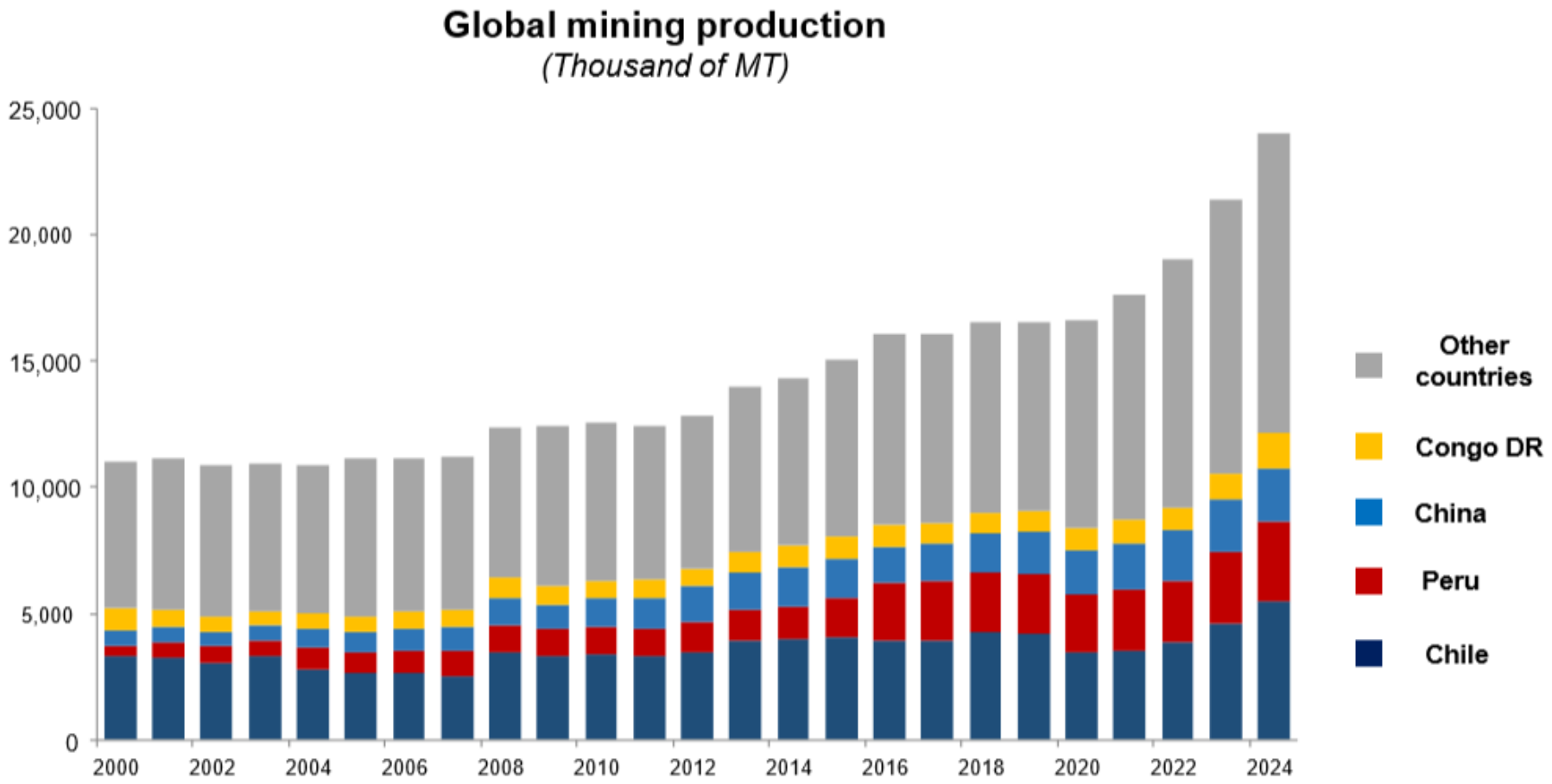
Canon advance in regions with mining potential

Formation of the Commission for the Dialogue and development of southern minerals corridor

New regulation of the Social advancement plan

Source: Ministry of Energy and Mines of Peru (Minem)

Peru Second Largest Copper Producer in the World



Source: Wood Mackenzie 2020

TSXV:PML
Frankfurt:PZM
BVL:PML

For further information, contact:
Luquman Shaheen, President and CEO
Phone: 604.684.4246
Email: info@panoro.com
www.panoro.com