



Russia, Krasnoyarsk Krai

RUSSIAN GOLD MINERS

PRODUCTION, TCC & AISC UPDATE (2019A VS 2020E)

November 2020

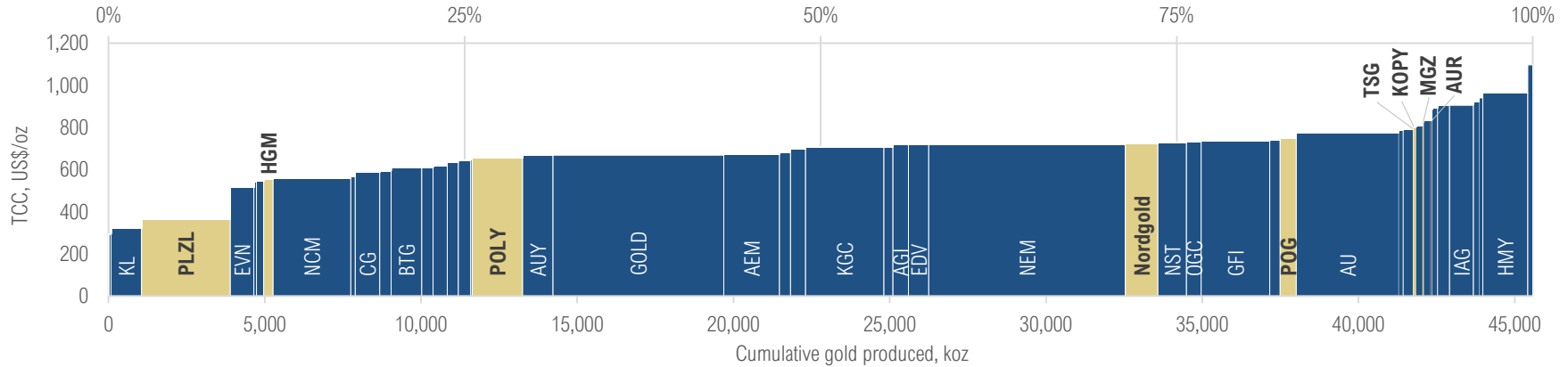
INTRODUCTION

- This slide deck summarizes and provides an update on 2020 full year (FY2020) expected metal production, Total cash cost (TCC)¹ and All-in Sustaining cost (AISC)¹ of the Russian gold miners in comparison with their international peers
- **Slide 3:** this slide displays primary gold producers' **Total Cash Cost Curve** based on FY2019 actuals (upper chart) and FY2020 estimated results (also including reported figures for peers with financial year ending June 30, 2020)
- **Slide 4:** this slide represents primary gold producers' **All-in Sustaining Cost Curve** based on FY2019 actuals (upper chart) and FY2020 estimated results (also including reported figures for peers with financial year ending June 30, 2020)
- **Slide 5-6:** these two slides display **Gold Production and Total Cash Cost** (FY2019 Actuals vs FY2020 estimated) in a table form with greater insight / comments (producers are sorted in ascending order based on FY2020E TCC)
- **Slide 7-8:** these two slides display **Gold Production, Total Cash Cost and All-in Sustaining Cost** (FY2019 Actuals vs FY2020 estimated) in a table form with greater insight / comments (producers are sorted in ascending order based on FY2020E AISC)
- **Slide 9:** Notes and Definitions

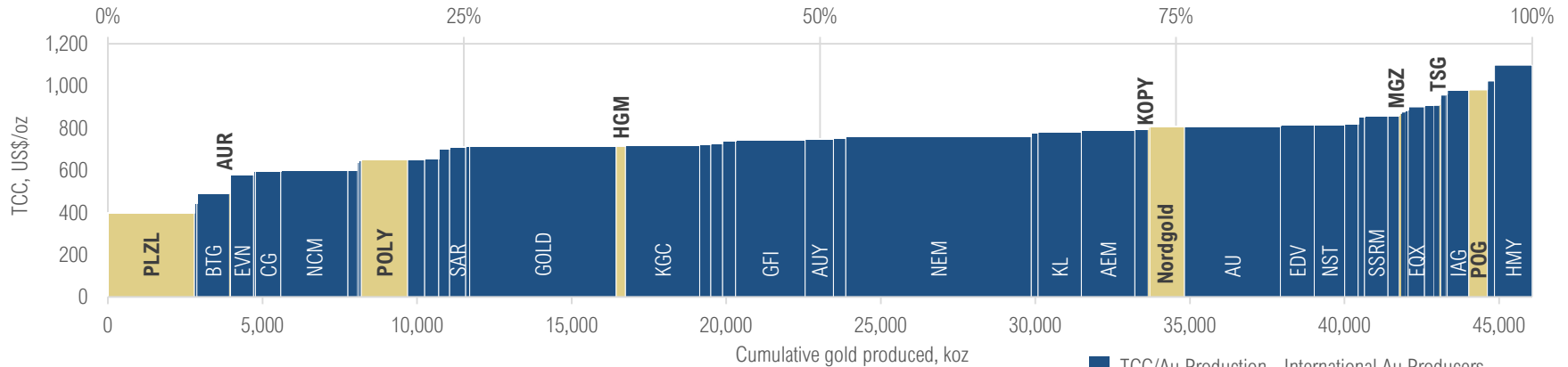
¹ For more details and definitions please refer to slide 9 "Notes and definitions"

TOTAL CASH COST CURVE (2019A VS 2020E)

TOTAL CASH COST CURVE – 2019 ACTUAL (2019A)



TOTAL CASH COST CURVE – 2020 ESTIMATED (2020E)

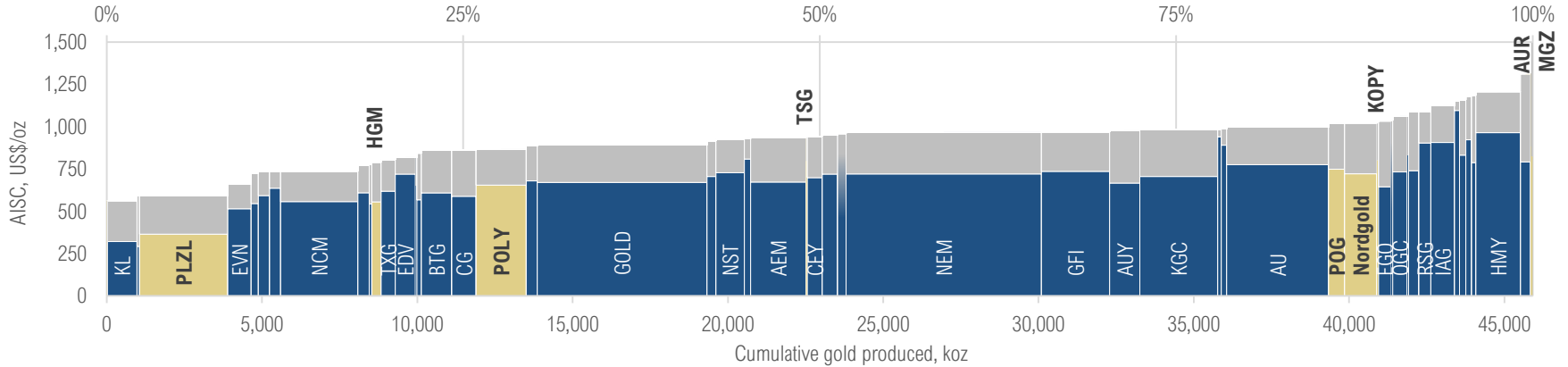


Source: For additional information / details on the sources and assumptions used please refer to slide 9 "Notes and definitions"

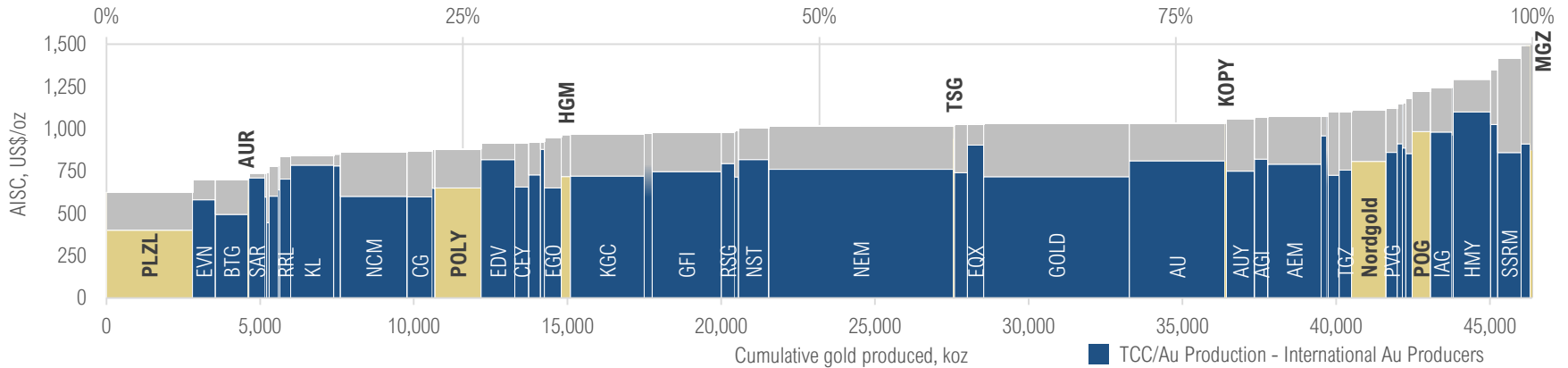
■ TCC/Au Production - International Au Producers
 ■ TCC/Au Production - Russian Au Producers

ALL-IN SUSTAINING COST CURVE (2019A VS 2020E)

ALL-IN SUSTAINING COST CURVE – 2019A



ALL-IN SUSTAINING COST CURVE – 2020E



- TCC/Au Production - International Au Producers
- TCC/Au Production - Russian Au Producers
- AISC Mark-up

Source: For additional information / details on the sources and assumptions used please refer to slide 9 "Notes and definitions"

GOLD PRODUCTION & TOTAL CASH COST (2019A VS 2020E) (1 OF 2)

A	B	C	D	E	F	G	H	I	J
			FY2019A	FY2020E		FY2019A	FY2020E		
#	Company	Ticker	Total Gold produced, koz	Total Gold produced, koz	YoY Change, %	TCC, US\$/oz	TCC, US\$/oz	YoY Change, %	Comment to column H
1	Polyus	PLZL	2,841	2,800	-1%	365	400	10%	2020 FY Guidance
2	Anglo Asian Mining	AAZ	81	80	-2%	293	445	52%	Estimate based on 2020 H1 results
3	B2Gold Corp	BTG	980	1,055	8%	609	493	-19%	Estimate based on 2020 H1 results
4	Auriant Mining	AUR	22	32	46%	884	577	-35%	2020 H1 Actual
5	Evolution Mining	EVN	753	746	-1%	515	580	13%	2020 FY Actual (Jul 2019 - Jun 2020)
6	Steppe Gold	STGO	-	60	-	-	595	-	2020 H1 Actual
7	Centerra Gold	CG	783	820	5%	589	597	1%	Estimate based on AISC 2020 FY guidance and historical performance
8	Newcrest	NCM	2,488	2,171	-13%	557	600	8%	2020 FY Actual (Jul 2019 - Jun 2020)
9	Dundee Precious Metals	DPM	231	300	30%	546	601	10%	Estimate based on AISC 2020 FY guidance and historical performance
10	Caledonia Mining	CMCL	47	48	1%	651	638	-2%	Estimate based on 2020 H1 results
11	Shanta Gold	SHG	85	85	1%	544	647	19%	Estimate based on AISC 2020 FY guidance and historical performance
12	Polymetal	POLY	1,614	1,500	-7%	655	650	-1%	2020 FY Guidance
13	Eldorado Gold	EGO	395	550	39%	645	650	1%	2020 FY Guidance
14	Centamin	CEY	481	455	-5%	699	655	-6%	2020 FY Guidance
15	Regis Resources	RRL	363	352	-3%	593	702	18%	2020 FY Actual (Jul 2019 - Jun 2020)
16	Saracen Mineral Holdings	SAR	355	520	47%	637	709	11%	2020 FY Actual (Jul 2019 - Jun 2020)
17	Rox Gold	ROGX	142	130	-9%	568	714	26%	Estimate based on AISC 2020 FY guidance and historical performance
18	Barrick Gold Corp	GOLD	5,465	4,739	-13%	671	716	7%	2020 H1 Actual
19	Highland Gold Mining	HGM	301	300	0%	556	717	29%	2020 H1 Actual
20	Kinross Gold Corp	KGC	2,508	2,400	-4%	706	720	2%	2020 FY Guidance
21	OceanaGold	OGC	471	360	-24%	733	725	-1%	2020 FY Guidance
22	St Barbara	SBM	362	382	5%	610	727	19%	2020 FY Actual (Jul 2019 - Jun 2020)
23	Torex Gold Resources	TXG	455	420	-8%	619	740	20%	2020 FY Guidance
24	Gold Fields	GFI	2,195	2,250	3%	736	746	1%	Estimate based on AISC 2020 FY guidance and historical performance
25	Yamana Gold	AUY	972	915	-6%	667	749	12%	Estimate based on AISC 2020 FY guidance and historical performance
26	Teranga Gold	TGZ	289	400	39%	706	755	7%	2020 FY Guidance

Source: For additional information / details on the sources and assumptions used please refer to slide 9 "Notes and definitions"

GOLD PRODUCTION & TOTAL CASH COST (2019A VS 2020E) (2 OF 2)

A	B	C	D	E	F	G	H	I	J
			FY2019A	FY2020E		FY2019A	FY2020E		
#	Company	Ticker	Total Gold produced, koz	Total Gold produced, koz	YoY Change, %	TCC, US\$/oz	TCC, US\$/oz	YoY Change, %	Comment to column H
27	Newmont Goldcorp	NEM	6,291	6,000	-5%	721	760	5%	2020 FY Guidance
28	Lundin Gold	LUG	-	220	-	-	780	-	2020 FY Guidance
29	Kirkland Lake Gold (+Detour)	KL	975	1,400	44%	321	784	144%	Estimate based on 2020 H1 results
30	Agnico Eagle Mines	AEM	1,782	1,730	-3%	673	790	17%	2020 FY Guidance
31	Resolute Mining	RSG	385	430	12%	904	794	-12%	Estimate based on AISC 2020 FY guidance and historical performance
32	Kopy Goldfields	KOPY	52	54	3%	802	806	0%	2020 H1 Actual
33	Nordgold	-	1,041	1,123	8%	722	807	12%	2020 H1 Actual
34	AngloGold Ashanti	AU	3,281	3,102	-5%	776	810	4%	2020 H1 Actual
35	Endeavour Mining (+Semafo)	EDV	651	1,095	68%	720	817	13%	Estimate based on AISC 2020 FY guidance and historical performance
36	Northern Star Resources	NST	915	985	8%	728	817	12%	2020 FY Actual (Jul 2019 - Jun 2020)
37	Alamos Gold	AGI	495	435	-12%	720	820	14%	2020 FY Guidance
38	Golden Star	GSC	204	205	1%	832	853	3%	Estimate based on AISC 2020 FY guidance and historical performance
39	SSR Mining (Au, Ag)	SSRM	332	760	129%	740	859	16%	Estimate based on 2020 H1 results
40	Pretium Resources	PVG	354	365	3%	680	860	26%	2020 FY Guidance
41	Mangazeya Mining	MGZ	44	61	38%	825	872	6%	2020 H1 Actual
42	Hummingbird Resources	HUM	116	125	8%	941	878	-7%	Estimate based on 2020 H1 results
43	TMAC Resources	TMR	137	100	-27%	788	885	12%	2020 FY Guidance
44	Equinox Gold Corp.	EQX	201	530	164%	809	903	12%	Estimate based on AISC 2020 FY guidance and historical performance
45	New Gold	NGD	323	304	-6%	792	910	15%	2020 FY Guidance
46	Pan African Resources	PAF	172	179	4%	891	911	2%	2020 FY Actual (Jul 2019 - Jun 2020)
47	Trans-Siberian Gold	TSG	44	40	-9%	798	941	18%	2020 H1 Actual
48	DRDGOLD	DRD	160	174	9%	1,096	958	-13%	2020 FY Actual (Jul 2019 - Jun 2020)
49	Serabi Gold	SRB	40	37	-8%	832	961	16%	2020 H1 Actual
50	IAMGOLD	IAG	762	700	-8%	907	980	8%	2020 FY Guidance
51	Petropavlovsk	POG	517	600	16%	749	983	31%	2020 H1 Actual (incl. 3rd party concentrates)
52	Argonaut Gold Inc.	ARTO	187	230	23%	923	1,025	11%	2020 FY Guidance
53	Harmony Gold	HMY	1,438	1,217	-15%	965	1,099	14%	2020 FY Actual (Jul 2019 - Jun 2020)

To download full table on one page (A3 format), please follow this [link](#).

Source: For additional information / details on the sources and assumptions used please refer to slide 9 "Notes and definitions"

GOLD PRODUCTION & ALL-IN SUSTAINING COST (2019A VS 2020E) (1 OF 2)

A	B	C	D	E	F	G	H	I	J	K	L
			FY2019A	FY2020E		FY2019A	FY2020E	FY2019A	FY2020E		
#	Company	Ticker	Total Gold produced, koz	Total Gold produced, koz	YoY Change, %	TCC, US\$/oz	TCC, US\$/oz	AISC, US\$/oz	AISC, US\$/oz	AISC YoY Change, %	Comment to column J
1	Polyus	PLZL	2,841	2,800	-1%	365	400	594	623	5%	2020 H1 Actual
2	Evolution Mining	EVN	753	746	-1%	515	580	661	700	6%	2020 FY Actual (Jul 2019 - Jun 2020)
3	B2Gold Corp	BTG	980	1,055	8%	609	493	862	701	-19%	Estimate based on 2020 H1 results
4	Auriant Mining	AUR	22	32	46%	884	577	1,316	711	-46%	Estimate based on 2020 H1 results
5	Saracen Mineral Holdings	SAR	355	520	47%	637	709	737	739	0%	2020 FY Actual (Jul 2019 - Jun 2020)
6	Steppe Gold	STGO	-	60	-	-	595	-	739	-	2020 H1 Actual
7	Anglo Asian Mining	AAZ	81	80	-2%	293	445	591	743	26%	2020 H1 Actual
8	Dundee Precious Metals	DPM	231	300	30%	546	601	725	780	8%	2020 FY Guidance
9	Caledonia Mining	CMCL	47	48	1%	651	638	820	807	-2%	2020 H1 Actual
10	Regis Resources	RRL	363	352	-3%	593	702	736	836	14%	2020 FY Actual (Jul 2019 - Jun 2020)
11	Kirkland Lake Gold (+Detour)	KL	975	1,400	44%	321	784	564	840	49%	2020 FY Guidance
12	Lundin Gold	LUG	-	220	-	-	780	-	850	-	2020 FY Guidance
13	Newcrest	NCM	2,488	2,171	-13%	557	600	738	862	17%	2020 FY Actual (Jul 2019 - Jun 2020)
14	Centerra Gold	CG	783	820	5%	589	597	862	870	1%	2020 FY Guidance
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17	Endeavour Mining (+Semafo)	EDV	651	1,095	68%	720	817	818	915	12%	2020 FY Guidance
18	Centamin	CEY	481	455	-5%	699	655	943	918	-3%	2020 FY Guidance
19	St Barbara	SBM	362	382	5%	610	727	773	919	19%	2020 FY Actual (Jul 2019 - Jun 2020)
20	Hummingbird Resources	HUM	116	125	8%	941	878	986	923	-6%	2020 H1 Actual
21	Eldorado Gold	EGO	395	550	39%	645	650	1,034	950	-8%	2020 FY Guidance
22	Highland Gold Mining	HGM	301	300	0%	556	717	791	966	22%	2020 H1 Actual
23	Kinross Gold Corp	KGC	2,508	2,400	-4%	706	720	983	970	-1%	2020 FY Guidance
24	Perseus Mining	PRU	272	258	-5%	n/a	n/a	960	972	1%	2020 FY Actual (Jul 2019 - Jun 2020)
25	Gold Fields	GFI	2,195	2,250	3%	736	746	970	980	1%	2020 FY Guidance
26	Resolute Mining	RSG	385	430	12%	904	794	1,090	980	-10%	2020 FY Guidance
27	Rox Gold	ROGX	142	130	-9%	568	714	844	990	17%	2020 FY Guidance

Source: For additional information / details on the sources and assumptions used please refer to slide 9 "Notes and definitions"

GOLD PRODUCTION & ALL-IN SUSTAINING COST (2019A VS 2020E) (2 OF 2)

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31	Torex Gold Resources	TXG	455	420	-8%	619	740	805	1,025	27%	2020 FY Guidance
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33	Barrick Gold Corp	GOLD	5,465	4,739	-13%	671	716	894	1,031	15%	2020 H1 Actual
34	AngloGold Ashanti	AU	3,281	3,102	-5%	776	810	998	1,031	3%	2020 H1 Actual
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38	Agnico Eagle Mines	AEM	1,782	1,730	-3%	673	790	938	1,075	15%	2020 FY Guidance
39	DRD GOLD	DRD	160	174	9%	1,096	958	1,151	1,075	-7%	2020 FY Actual (Jul 2019 - Jun 2020)
40	Chaarat Gold Holdings	CGH	60	55	-9%	n/a	n/a	1,040	1,076	3%	2020 H1 Actual
41	OceanaGold	OGC	471	360	-24%	733	725	1,061	1,100	4%	2020 FY Guidance
42	Teranga Gold	TGZ	289	400	39%	706	755	917	1,100	20%	2020 FY Guidance
43	Nordgold	-	1,041	1,123	8%	722	807	1,023	1,113	9%	2020 H1 Actual
44	Pretium Resources	PVG	354	365	3%	680	860	888	1,120	26%	2020 FY Guidance
45	Pan African Resources	PAF	172	179	4%	891	911	988	1,147	16%	2020 FY Actual (Jul 2019 - Jun 2020)
46	TMAC Resources	TMR	137	100	-27%	788	885	1,186	1,153	-3%	2020 FY Guidance
47	Golden Star	GSC	204	205	1%	832	853	1,159	1,180	2%	2020 FY Guidance
48	Petropavlovsk	POG	517	600	16%	749	983	1,020	1,220	20%	2020 H1 Actual (incl. 3rd party concentrates)
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51	Harmony Gold	HMY	1,438	1,217	-15%	965	1,099	1,207	1,293	7%	2020 FY Actual (Jul 2019 - Jun 2020)
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Source: For additional information / details on the sources and assumptions used please refer to slide 9 "Notes and definitions"

NOTES AND DEFINITIONS

1. Sources used: corporate reports, disclosures and filings.
2. Total Cash Cost (TCC) are defined as on-site mining costs plus on-site G&A, royalties/production taxes, permitting/community costs related to current operations, inventory write-down less by-product credits.
3. All-in Sustaining Cost (AISC) reflect the full costs of keeping the mine in business and include adjusted operating expenditure, sustaining corporate and administrative expenditure and sustaining capital and exploration expenditure. It excludes non-sustaining costs related to new operations and costs that are not related to current operations, as well as taxes, finance costs and working capital adjustments.
4. Gold production for POLY, AUYY, SSRM, HGM, AR.TO, AAZ, KGC, GFI is reported as gold equivalent ounces.
5. Average FX-rates used:
 - Y2019: USD/ZAR 14.18, USD/AUD 1.40, USD/CAD 1.33
 - Y2020: USD/ZAR 15.66, USD/AUD 1.49, USD/CAD 1.36

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- **Tailored benchmarking and bespoke research** for gold, platinum-group metals and base metals projects, operating mines and producers (Russia, FSU/CIS & Global)
- **Project identification, positioning and ranking** to unveil investment potential at PEA/scoping study, Pre-BFS and BFS stages - helpful to cross-check designed/output parameters vs peers and industry
- **Continuously updated own database** (reported results, forecasts & guidance)
- **Broad range of operational and financial metrics:**
 - Total resources, reserves - tonnages, ounces and grades
 - Throughput capacities, recoveries, head grades, production per employee
 - EBITDA margin, on-mine costs per unit, CAPEX per annual production
 - Total Cash Cost, All-in Sustaining Costs Curves
- **Comparable trading multiples (comps) / precedent transactions** analysis
- **Financial modelling, presentations, investment memorandums** and other **pitching materials** for Metals & Mining clients

CONTACT DETAILS

Ilya AYZIKOV

A metals & mining analyst and project manager with over ten years' of a hands-on experience in investments, project financing (with equity and debt providers) and management with the industry majors and junior miners (Norilsk Nickel, UC RUSAL, Vi Holding / Great Dyke Investments) in the PGM, gold and base metals (nickel, copper, cobalt, chrome) sectors in various developing and frontier jurisdictions across the EMEA region (incl. Russia, South Africa, Botswana, Zimbabwe), Indonesia and Australia.

Detailed CV, credentials and references are available upon request.

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I would like to thank Cresco Project Finance team for their continuing support in the implementation of ideas and initiatives:

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Selected Key Sectors:

Mining | Mining, processing & beneficiation
Energy | Renewable and thermal electricity generation, grid infrastructure
Infrastructure | Water, ports, roads, railways, pipelines, telecommunications
Real Estate | Affordable housing, mixed use developments, hotels
Healthcare | Private hospitals
Agri business | Pulp & paper, sugar & ethanol, agriculture & aquaculture

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