

# POLYUS GOLD

## Investment report

Done by: Agranat V., Afanasiev A., Bakirova T., Kakaev D.

Share price	₽ 14287
Market Cap	\$ 27643.3 mln
Enterprise value	\$ 29834.1 mln

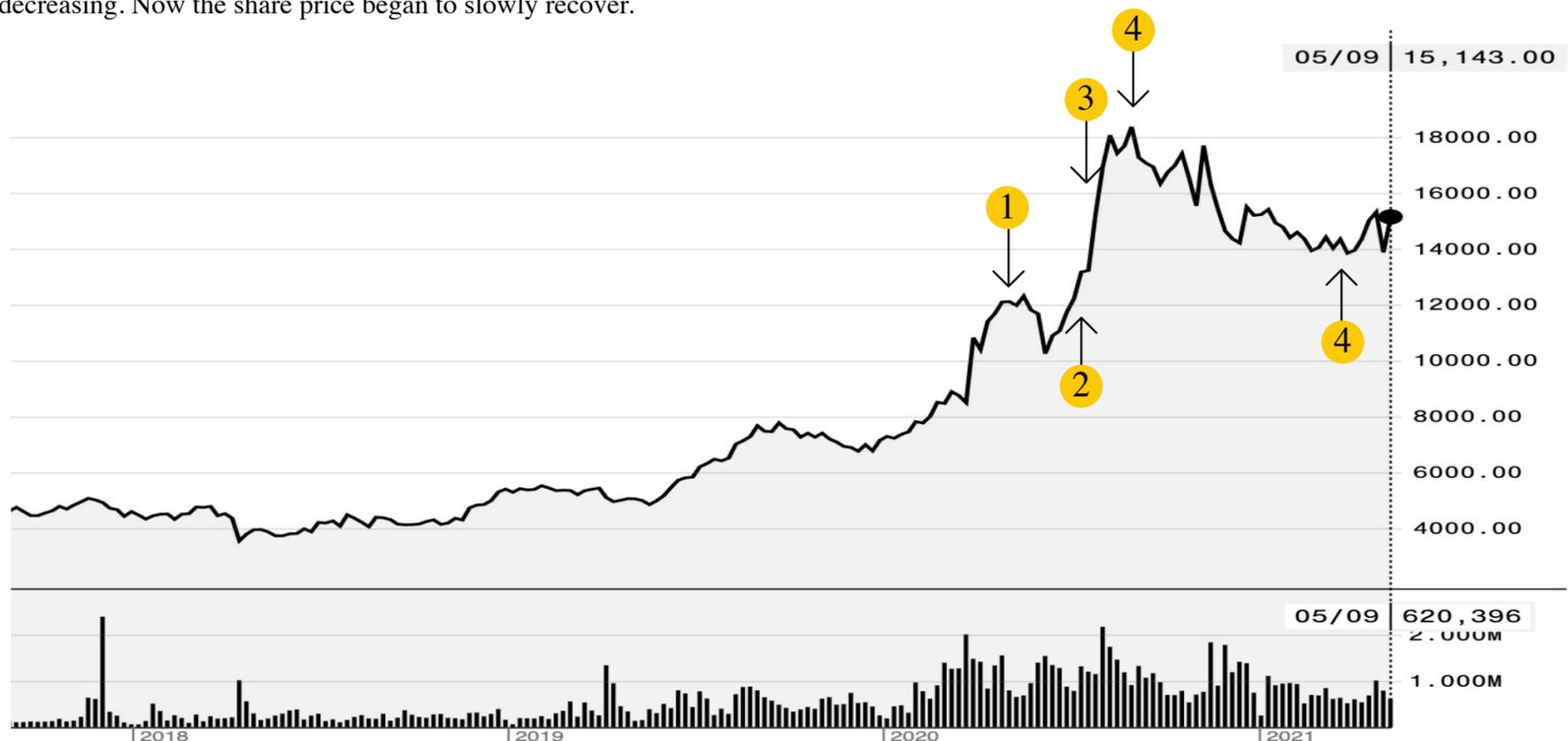
	2019	2020	Industry
P/E	16.2	16.2	13.36
Price to Sales	7.9	5.3	2667
Price to Free Cash Flow		20.32	22.86
EV/EBITDA	9.7	8.47	
Dividend Yield		4.24%	6.88%
Free-float		21.85%	
Basic EPS		886.98	346.55

**Polyus is a highly efficient gold mining company with the lowest level of TCC per ounce of gold in the industry and prospects for significant growth in gold production after the development of the Sukhoi Log deposit. Considering the optimistic outlook for gold-mining industry and outstanding competitive advantages of the Polyus, we recommend to BUY the stock.**

### In 2 years the company became more attractive for investors:

**P/E** remained the same in a year, it is a little bit higher than the industry one, it means that if an investor give the company money now, he will return them in 16 years. In the industry it will happen earlier, in 13 years. **P/S** has decreased in a year, this is a positive sign for investors. It should be remembered that the lower this indicator, the better, and the less the investor pays for each ruble the company receives from sales. **EV/EBITDA** decreased in a year, this is a positive sign for investors. That is, in order to recoup the value of the company, you will need almost 8,5 profits before taxes, interest and depreciation. **DY Polyus** is higher than the industry one, it makes the company more attractive to bond-holders. Company's **free float** is not so high, it is a bad indicator for investors, because it makes their operation with stocks more risky due to the speculators. **Basic EPS** has grown and remained higher, than the industry one, this is a good sign for investors. As the company did not do buybacks, this means that the indicator increased, because the company's net profit increased.

The stock price was growing continuously until 2020, then it rocketed and fell a little. Afterwords the price increased a lot, and till the 2021 was decreasing. Now the share price began to slowly recover.



- 1 World gold prices set a record amid negative forecasts for the US economy, according to data from trading on the Comex exchange. Bloomberg reported this with reference to the report of the American Federal Reserve System. As of 12:23 Moscow time, June gold futures are traded at \$ 1,772 per ounce (+ 0.85%). This is how gold has set a price high since September 2012.
- 2 Investments in gold exchange-traded funds have reached \$ 40 billion, which is a record for the entire history of the precious metals market. This is taking place amid investor purchases of defensive assets amid uncertainty around the oil market and the coronavirus epidemic.
- 3 This increase in August was preceded by reports of a rapid rise in gold prices. On the night of July 27, the price of a troy ounce in New York has renewed its historical maximum. It topped \$ 1,910 for the first time since September 2011.
- 4 In August 2020, the price of Polyus shares set a historic maximum at 18,773 rubles, and then went down. In March 2021, a local minimum was formed at around 13,400 rubles, and the share price began to slowly recover. Currently, one share costs 14,300 rubles.

## Industry overview

According to the EY Gold Survey 2020, the 10 largest countries account for about 70% of the world's gold reserves. Russia ranks **second** in the global ranking of gold reserves with about 11% of all of them in the world (the data have been provided by United States Geological Survey). Australia is a leader. According to the GFMS, Russia also takes the third place in the world gold mining activity (about 9%) with China taking the leader position and Australia taking the second place.

Gold production in Russia has grown continuously from 2010 till 2019 mostly due to the growth of production from mineral raw materials. Fitch Solutions predicts the growth of gold production in Russia to 482.1 tons by 2029 year (at an average annual growth rate 3.7% during 2020-2029). According to Fitch Solutions, the reasons accelerating the growth rate of gold mining will serve as a high internal demand amid the risk of new economic restrictions on state-owned banks, as well as the development of number of gold mining projects.

Gold mining in 2019 was carried out in 25 regions of Russia. At the same time, the number of regions with production exceeding 1 tonne increased from 13 in 2010 to 16 in 2019, which indicates the growing geographic diversification of the industry. The largest gold mining region is traditionally the Krasnoyarsk Territory. In different years, the Amur Region (2011-2013) and the Chukotka Autonomous Okrug (2014-2016) were in second place.

According to the results of 2019, the number of gold mining enterprises remained practically at the level of last year - 581 companies. It should be noted that there is a steady downward trend in the share of gold production by small companies. The structure of the industry is dominated by medium and large companies - 62 such companies account for 90% of all gold production in Russia.

The global demand for gold has decreased by 1 %, whereas The World Gold Council's outlook for 2021 suggests that investment demand will remain well supported, whilst gold consumption, particularly in emerging markets, is anticipated to benefit from a potential economic recovery. In a projected low-interest-rate environment, investors might also be likely to add risk assets in expectation of an economic recovery, although they will likely be facing potential portfolio risks, such as higher budget deficits, inflationary pressures, and market corrections amid already high equity valuations. The Council expects that central banks will continue to favor gold investments as part of their foreign reserves which, combined with the low-interest-rate environment, continues to make gold attractive.

In 2021, in the global market, gradual recovery in demand for gold from the jewelry industry is expected. This will be facilitated by the return of the economy to normal functioning as a result of vaccination against the coronavirus and the restoration of the population's income. A gradual increase in demand for gold from the tech sector is also expected.

With growth widely expected to recover in 2021, consumers might be more encouraged to take advantage of buying opportunities following gold's more stable price performance since mid-August 2020. Economic growth and Chinese demand are positively linked, and the WGC anticipates that gold consumption may continue to increase regionally. The Indian gold market also appears to be stronger; however, in other regions, with the global economy operating well below potential and gold prices at historically high levels, consumer demand is likely to remain subdued.

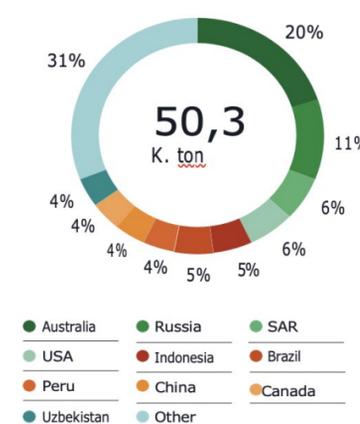
## Gold price

Gold is mostly traded on the OTC London market, the US futures market (COMEX) and the Shanghai Gold Exchange (SGE). The standard future contract is 100 troy ounces. Gold is an attractive investment during periods of political and economic uncertainty. Half of the gold consumption in the world is in jewelry, 40% in investments, and 10% in industry. The biggest producers of gold are China, Australia, United States, South Africa, Russia, Peru and Indonesia. The biggest consumers of gold jewelry are India, China, United States, Turkey, Saudi Arabia, Russia and UAE. The gold prices displayed in Trading Economics are based on over-the-counter (OTC) and contract for difference (CFD) financial instruments.

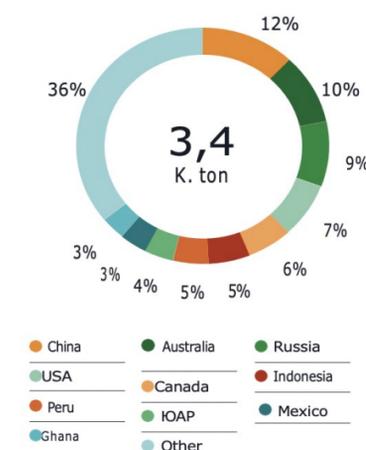
According to market participants, the median value of the expected gold price in the medium and long term will be USD 1,800 per ounce. It is worth noting that a representative of one of the companies surveyed suggests that this figure may rise significantly above \$ 3,000 per ounce. The persistence of an unstable macroeconomic situation is the main factor behind the rise in the price of gold for 92% of respondents. At the same time, 58% of respondents consider the continuation of the US economic stimulus program to be the main reason for the rise in prices. And only 8% of respondents identify the resumption of industrial demand for gold as a key driver of price growth. In turn, 56% of respondents believe that the main factor in the decline in the price of gold is the reduction in investment demand.

The metals & mining industry beta of emerging markets is 0,77, which means medium positive correlation with the market.

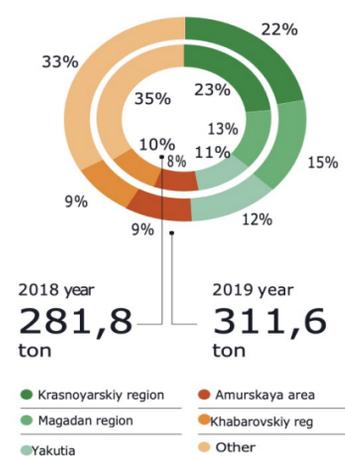
Top 10 countries by their gold reserves by the end of 2019



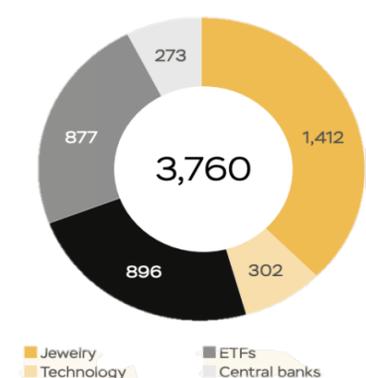
Top 10 countries by the amount of gold extracted in 2019



5 main gold mining Russian regions

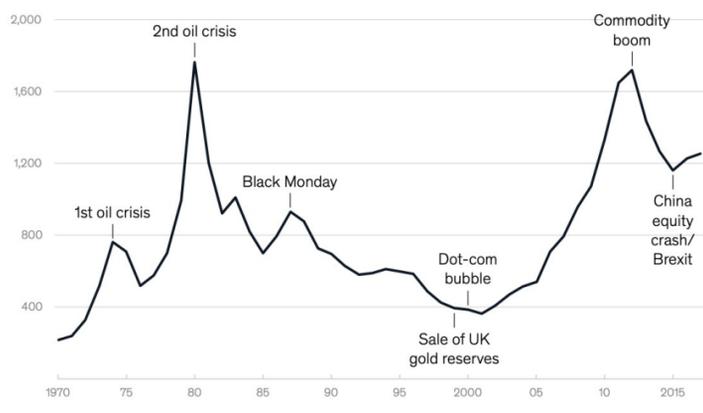


GLOBAL GOLD DEMAND IN 2020



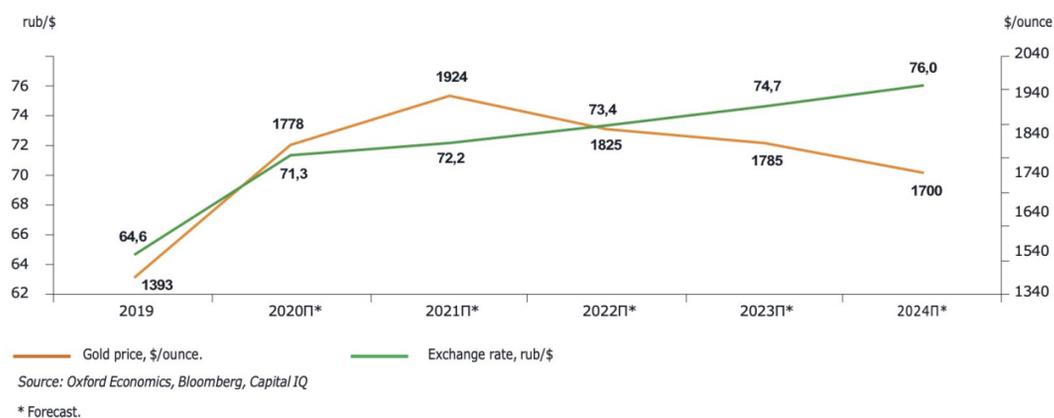
**Gold prices peaked above USD 1,700/oz during the 1980s energy crisis and 2003-11 commodity boom, only to sharply decline thereafter**

Gold price, 1970-2017, USD/oz, 2015 real



Source: World Bank, McKinsey Global Institute

**Consensus forecast for gold prices and average annual exchange rate for 22 October 2020**



\* Forecast.

Source: Oxford Economics, Bloomberg, Capital IQ

**Business description**

Polyus is the biggest gold mining company in Russia and one of the top-10 with one of the lowest production costs in the world. The main enterprises of the company are located in the Krasnoyarsk Territory, Irkutsk and Magadan Regions, as well as in the Republic of Sakha (Yakutia) and include 5 operating mines, gold placers and a number of projects under construction and development.

Polyus is listed on the Moscow Exchange since 2006 and on the London Stock Exchange since 2017. The company issued \$1,8 bln as 3 Eurobonds and \$250 mln as the convertible bonds since 2016.

The financial stability of Polyus is confirmed by credit ratings from all three leading international rating agencies.

	Moody's	Fitch	S&PGR	RAEX
Corporate Rating	Baa3	BB	BB+	ruAA+
Outlook	Stable	Positive	Stable	Stable
Publication date/ date of review	21 April 2021	19 November 2020	18 December 2020	08 October 2020
Eurobonds rating *	Baa3	BB	BB	-
Publication date/ date of review	21 April 2021	20 December 2018	23 January 2020	-

**Board of directors & shareholders structure**

The company is controlled by Polyus Gold International Limited (PGIL), the beneficiary of which is the son of Suleiman Kerimov - Said Kerimov. This structure owns 76.34% of the shares. The free float of the company's shares is 21.85%. The company's free float mostly located in the North America and UK and only 7% is traded in Russia.

The Board of Directors is composed of nine members, including four independent directors, with the Chairman being an independent director. Professional experience of independent directors is connected with natural resources (metals & mining, oil & gas), investments and business development and capital markets.

**Current assets**

Olimpiada is Russia's largest operating gold mine – and Polyus' flagship operation. It is located on the Krasnoyarsk Territory in Western Siberia, approximately 500 kilometers north of the city of Krasnoyarsk. The mine is located in Yeruda in the Severo-Yeniseysky administrative district. The town of Severo-Yeniseysky, the local administrative center, is located 60 kilometers by road north of Yeruda. The deposit was discovered in the 1970s, although alluvial gold mining in the region dates back much farther. Exploration is reported to have commenced at Olimpiada in the 1970s. In 2020, total gold output decreased 14% year on year to 1 199 thousand ounces, driven by lower grades in ore processed. Nevertheless, it accounts for almost half of the company's total gold production (45% of adjusted EBITDA). The ore extracted at the deposit is processed at three factories, the total capacity of which is 14 million tons of ore per year. Production at this field is carried out by 3 378 employees. Over 2020, Polyus installed and fine-tuned three flotation cells: two units at Mill 3 and one unit at Mill 1.

Blagodatnoye is located on the Krasnoyarsk territory, 25 kilometers north of Olimpiada. Blagodatnoye operates as an open-pit mine with surface stockpiling. The process mill was commissioned in 2010 with a nominal capacity of 6.0 million tonnes per annum. In 2020, the field accounts for 16% total output (17% of adjusted EBITDA). It has a processing capacity of 9 million tons of ore per year and provides an option for 1492 people to work. In late 2020, In 2020, Polyus completed the feasibility study for construction of a new mill at the Blagodatnoye complex with a nominal processing capacity of 8.0 million tonnes per annum, which would increase the total throughput capacity at the Blagodatnoye complex to 17.0 million tonnes per annum. For the first five years of operations, the recovery rate is estimated at 87.9% and TCC is estimated at \$320/ oz. As a result, annual gold output at Blagodatnoye may increase by 390 000 ounces.

Alluvial deposits in the River Lena basin in the Irkutsk Region have been yielding gold since the mid-1840s. In 2020, refined gold output amounted to 143 300 ounces (5% of total output). Deposits are characterized by relatively high TCC (\$847/oz TCC) among all large-scale production assets.

Verninskoye is the gold deposit located in the northern part of the Bodaibo Administrative District of the Irkutsk Region. The development of the mine commenced in 2006 and it was commissioned in December 2011. In 2020, refined gold output rose 7% year on year, to over 273 000 ounces (10% of total output). This was a result of higher ore processing volume, which was up 8% to 3.3 million tonnes, due to improved hourly throughput at the mill. "Polyus" continues to implement the project to increase the productivity of the Verninskoye mill to 3.5 million tons per year, it's expected to complete this project in 2021.

The Kuranakh mine is located on the Aldansky District of the Republic of Sakha in Far Eastern Russia, approximately 400 kilometers south-west of the regional capital city of Yakutsk. The mine was commissioned in 1965. The gold deposits comprise 11 deposits and 24 stockpiles, situated between six kilometers and 25 kilometers from the processing plant. In 2020, gold output at Kuranakh rose 8% year on year totaling 243 000 ounces (9% of total output), driven by a 10% increase in the volume of ore processed at the mill. Processing capacity is 7.5 mt per annum.

Natalka is a large-scale, open-pit operation, which uses conventional drill-and-blast and truck-and-shovel mining methods. The Natalka deposit is located near the town of Omchak in the Tenkinsky District of the Magadan Region of North-East Russia. Polyus acquired Natalka in 2008. The construction of the enterprise has been carried out intermittently since 2012. In 2017, production was resumed. The Company launched operational initiatives targeting recovery improvement in the second half of 2020. Polyus' technical team replaced rubber-steel lining and installed chrome-molybdenum lining in the ball mill to improve its comminution parameters. By the year end, the Company had completed the flash flotation roll-out along with a new CIL line commissioning at the Natalka Mill. The recovery rate reached 74.3% in December. In 2020, refined gold output rose by 12% and amounted to (16% of total output). Processing capacity - 11.4 million tons of ore per annum.

Sukhoi Log (greenfield project) - is the largest gold deposit in Russia and one of the largest greenfield assets globally. Polyus obtained the license for Sukhoi Log in 2017. As at the end of 2020, the feasibility study on Sukhoi Log had begun, and is expected to be completed in the second half of 2022. This will be followed by the final investment decision. Hot commissioning is expected to be in 2027, as is the pouring of the first gold.

### Development projects

At Sukhoi Log, the Company plans to fully leverage the expertise and technologies that have already demonstrated great performance and safety at Polyus' other sites. In tandem with the development of Sukhoi Log, Polyus continues to increase production capacity at operational mines, including via the expansion of the Verninskoye mill and the construction of Mill 5 at Blagodatnoye.

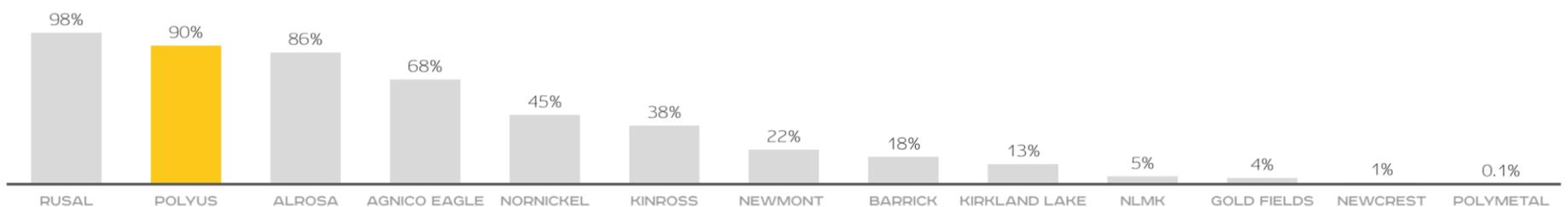
### ESG

The company attaches great importance to the sustainable development goals and achieves significant results. Since 2019, Polyus shares have been included in the MSCI Emerging Markets ESG Leaders Index. Last year, the MSCI ESG rating of "Polyus" was confirmed at the "A" level for the second year in a row.

The SAM Corporate Sustainability Assessment rated Polyus at 54 points in 2020, which is 9 points higher than the previous assessment, and higher than the average rating for other global companies in the mining and metallurgical sector, which is 39 points.

The rating service CDP last year upgraded the ratings of the "Polyus" Climate Change and Water Security from D to C. CDP ratings are one of the most important benchmarks for international investors when evaluating companies from a sustainable development perspective.

### SHARE OF RENEWABLE SOURCES IN ELECTRICITY CONSUMPTION BENCHMARKING <sup>1</sup>

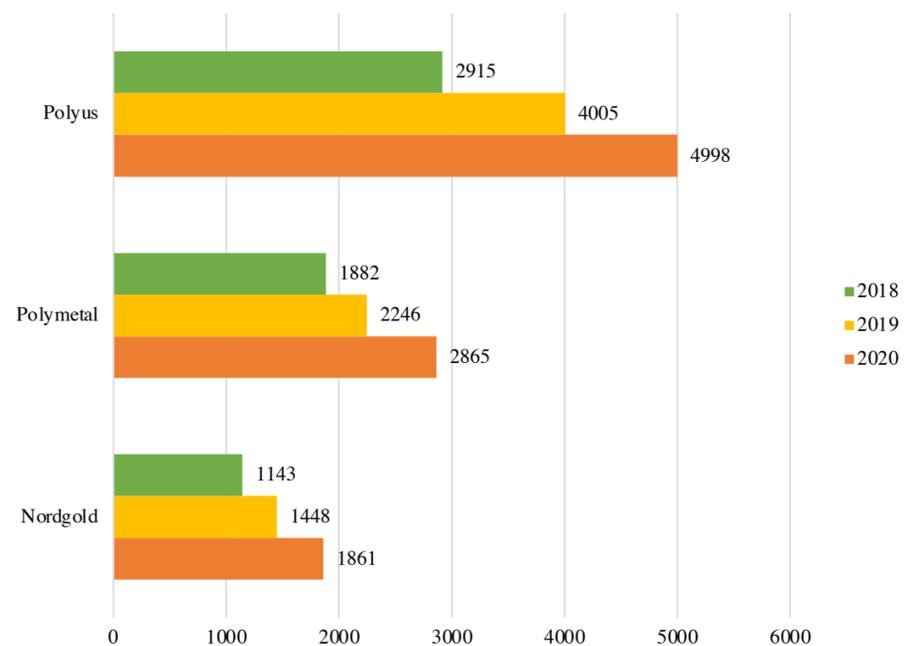


### Financial position overview

#### Revenue, EBITDA & Net Profit

Polyus demonstrates a superior financial performance in 2020 particularly due to a rise of average released refined gold price (\$1403/oz in 2019 vs \$1876/oz in 2020). The total number of ounces of gold sold decreased by 2% compared to the year prior to COVID. On the contrary, there is an increase in revenue in monetary terms from all business units, especially Natalka (from \$571 mln in 2019 to \$814 mln in 2020) and Olimpiada (from \$1906 mln in 2019 to \$2155 mln in 2020). The company continues to generate growing from year-to-year revenue, having a 25% boost compared to year 2019. Being the largest gold-mining company in Russia, Polyus keeps the leading position surpassing its biggest industry competitors. The group's adjusted EBITDA follows a positive trend and equals to \$3690 mln in 2020, exceeding the industry average one. Polyus faces a downturn of EBIT and net profit for the period connected with significant non-cash items (loss of \$544 mln on revaluation of derivative financial instruments and a foreign exchange loss of \$250 mln) but adjusted net profit reflects a 41% rise and the enterprise did not make any changes in the pay-out policy.

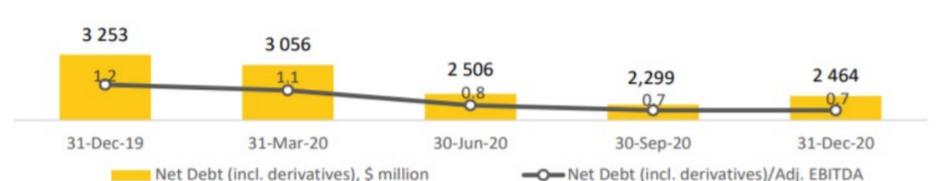
Revenue overview (\$ mln)



#### Net debt & D/E ratio

Net debt of Polyus was declining steadily throughout the year except for the last quarter (September 2020 – December 2020). It still significantly exceeds the value of the same indicator for other enterprises in the gold-mining industry, but the downward trend makes it possible to avoid the problem of debt overhang. In 2019 Polyus successfully reduces Net Debt to Equity ratio from 6.86 in 2018 to 1.7, maintaining it at 1 in 2020. Mainly the goal is achieved by increasing cash and cash equivalents, which allow the company to guarantee quick and absolute liquidity and prove its acceptable financial sustainability.

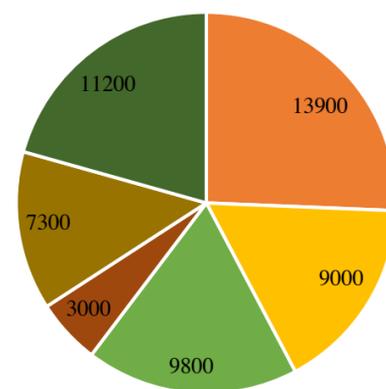
Net Debt and Net Debt to EBITDA ratio



### Operations: volumes and reserves

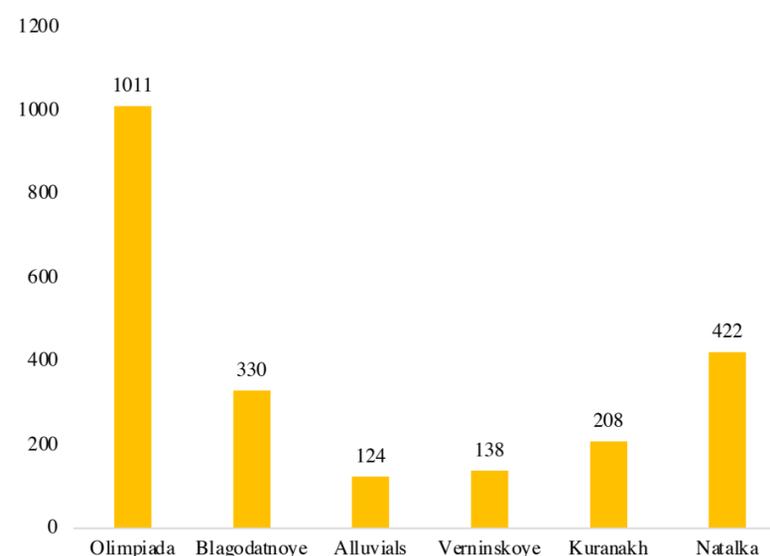
- Natalka's recovery:** in 2017, the recovery rate at this field was at the level of 42.70%. However, in subsequent years, as a result of technical improvements (the introduction of flash flotation and the launch of a new sorption line), it grew at a rapid pace. In 2020, the average was 71.90%. As a result of these improvements, we expect long-term gold production to be at least 440 koz.
- Olimpiada's optimistic expectations:** Despite the fact that the processing capacity at Natalka and Olimpiada is not so much different, the production of gold at the Krasnodar business unit is still several times higher than the production at other deposits. This is due to the high grade of gold in the ore (3.18 g / t in 2020) and high recovery rate (in 2019 it was 82.4%). As a result of the analysis of the JORC code reserve estimate, we expect high gold production in 2021
- Krasnodar's potential:** Blagodatnoye is one of the key assets of the company. Currently, the capacity of MILL at the field is 9 million tons per year. However, the company has planned the construction of a new MILL-5 with a processing capacity of 8 million tons per year. The launch is planned for 2025, which will significantly increase the volume of gold production at the field.

2021 FY processing capacity, koz



Legend: Olimpiada, Blagodatnoye, Alluvials, Verninskoye, Kuranakh, Natalka

2021 refined gold production forecast, koz



### Gold reserves

Polyus is a company with one of the largest gold reserves in the world. The largest volumes of stocks are located in Krasnodar business units (Olimpiada and Blagodatnoye). Large volumes are also located in Natalka with a high grade of gold in the ore.

The chart below shows the forecast of gold reserves at the key active deposits of the company. As of the end of 2019, there were 24,000 koz at the Natalka deposit, 8,800 koz at Blagodatnoye, and 14,600 koz at the Natalka deposit, according to the JORC Codex Gold Reserve Assessment Report.

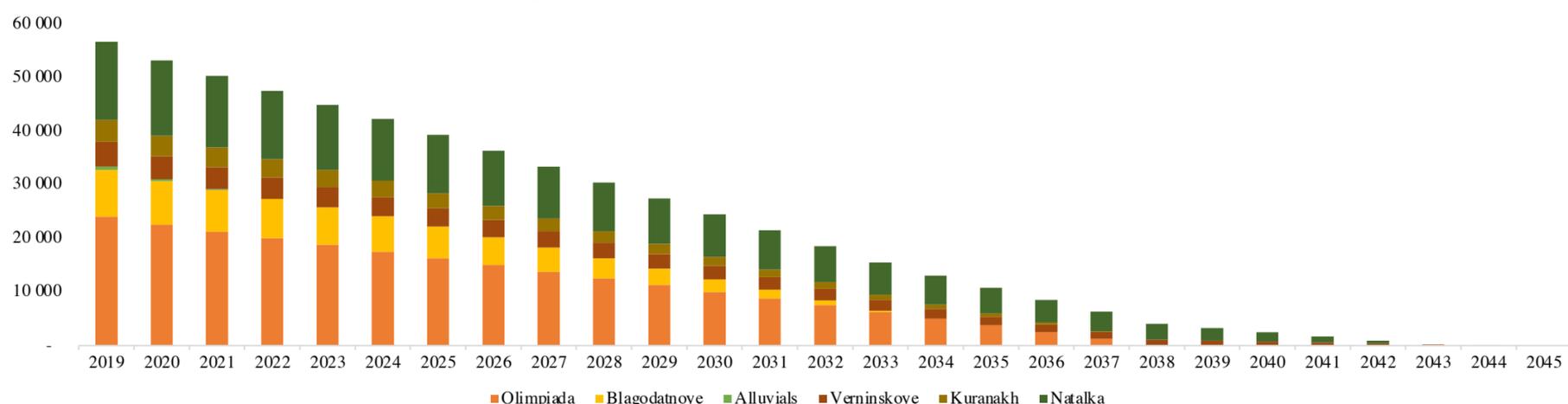
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### Key assumptions:

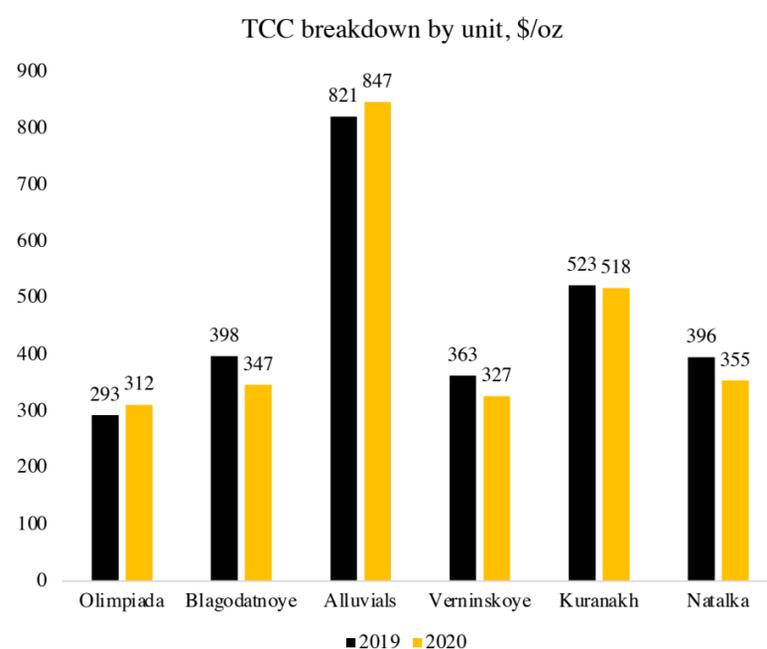
- We consider only JORC Proved and Probable reserves. We also decided to equate production volumes with refining volumes, since we cannot yet explain the historical difference between them in many fields
- As an average gold grade in the ore is always fluctuating on the yields, we used values from Polyus reserves report (JORC proved and probable) at 31 December 2019
- The rate of decline in gold reserves is almost always constant, since there is a limitation in the form of MILL processing capacity. However, there are plans to increase the capacity of the MILL in many of the fields, so the rate of growth in the loss of reserves increases over time. For example, due to the launch of Mill-5 in 2025, reserves at the Blagodatnoye field will begin to decrease almost twice as fast due to a huge increase in processing capacity
- If there are no changes, the last gold reserves will remain at the Verninskoye deposit, since despite the small ore reserves, the processing capacity at this deposit is very limited (3 million tons)

Polyus gold reserves forecast (JORC Proved and Probable), koz

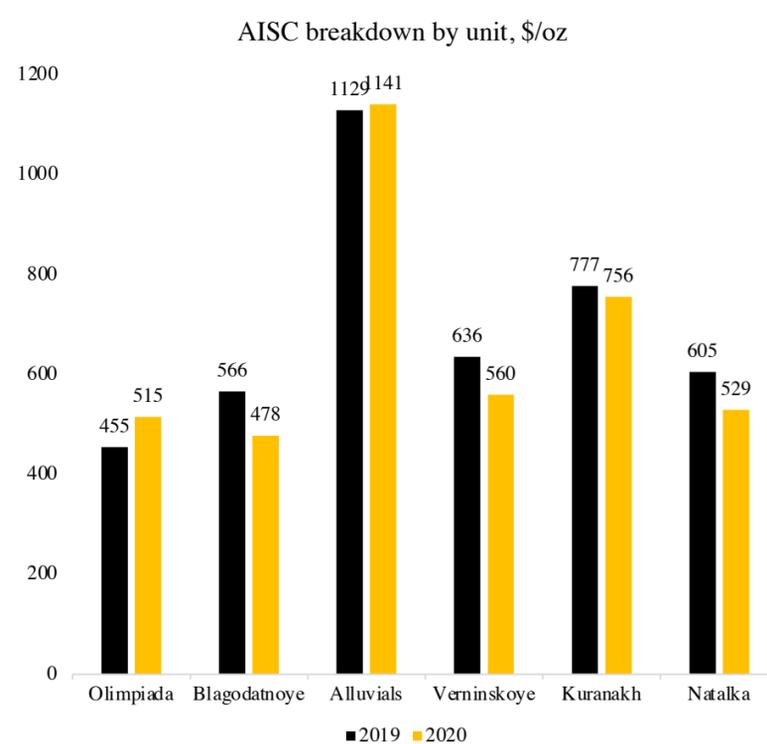


## Operations: Expenses

- TCC:** TCC (Total cash costs) is a key indicator of the efficiency of the Company's enterprises. "Polyus" pays significant attention to monitoring production costs, tracking and analyzing performance indicators and the performance of its assets and following best practice in cost control. Polyus Gold takes leading positions – company has one of the lowest TCC in the world. In 2020, TCC on Blagodatnoye amounted to \$ 312 / oz, which is 6% higher than last year. This happened against the background of a decrease in the average gold content in the processed ore, as well as due to an increase in the mineral extraction tax. The impact of these factors was partially offset by the weakening of the national currency. It should be noted that the TCC indicator on Natalka amounted to \$ 355 / oz in 2020, which corresponds to a decrease of 10% up from \$ 396 per ounce in 2019. This became possible due to the increase in the average gold grade in processed ore (from 1.61 g / t in 2019 to 1.72 g / t in 2020). Another positive factor was the increase in the mill's hourly productivity to 1,495 t / h, compared to the 2019 average of 1,462 t / h.



- In 2020, the total cash costs of producing and maintaining ongoing operations (AISC) at the Olimpiada increased to \$ 515 per ounce, driven by higher maintenance capital and stripping costs from the prior year. At Blagodatnoye, AISC fell to \$ 478 per ounce in line with TCC dynamics, reflecting the decline in stripping costs in the reporting period.

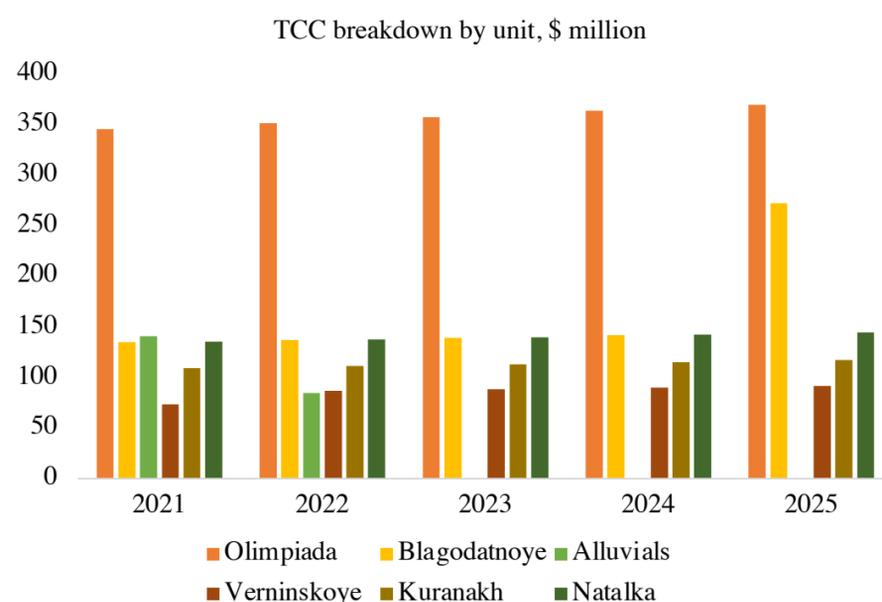
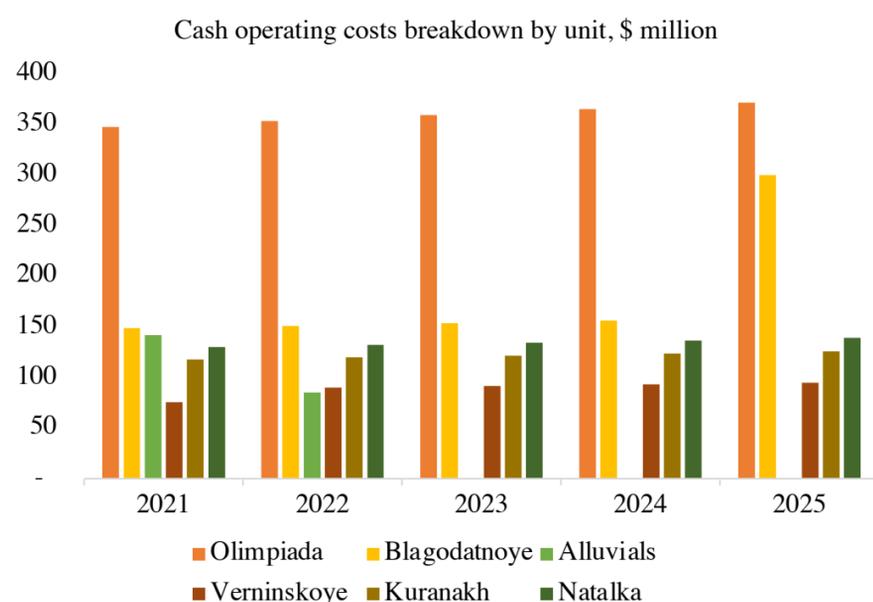


### Forecasts

Key assumptions:

- The analysis of the breakdown of cash costs by operating activity from the annual report of the pole was carried out.
- Taking into account the dependence of operating costs on production volume, the unit was calculated to the volume of each field, taking into account cost inflation.
- Since the TCC is associated with Cash Operating costs, the difference between them also varies depending on the volume of production at a particular field.
- Ore processing volumes are equated to ore mined volumes

The charts below show the forecast for Cash Costs from operations, TCC and AISC.



## Revenue modeling and valuation

Using data from the production results report, you can build a revenue forecast, taking into account the characteristics of the field and the new MILL constructions.

**1) Production volumes.** Revenues at a particular field very much depend on production volumes, and production volumes very much depend on MILL capacity. As a rule, production levels remain constant at a given capacity of the Mill, because otherwise it becomes unprofitable to mine ore (ore storage is very expensive, storage volumes are very limited. It becomes profitable only in case of high transportation cost).

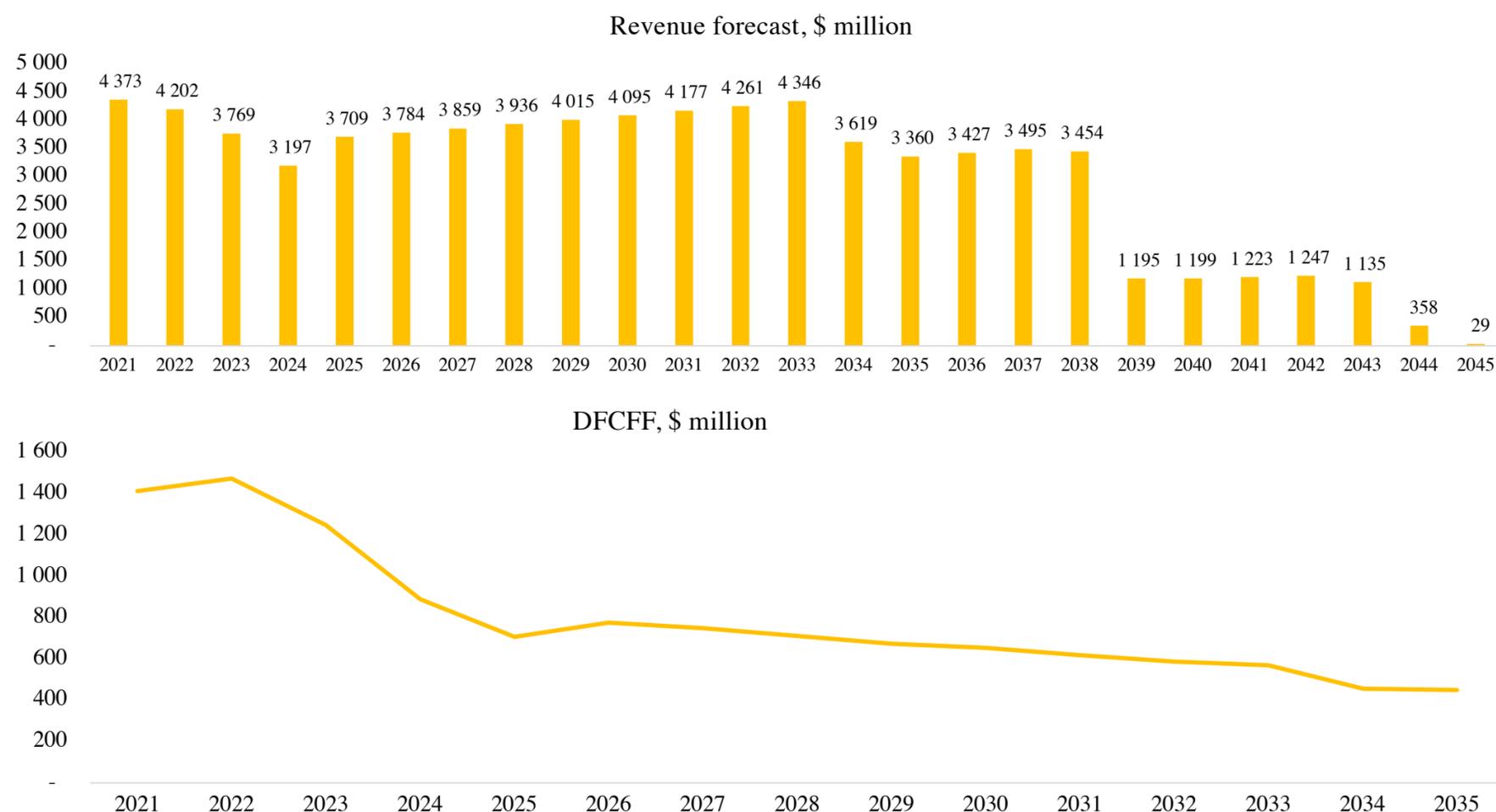
**2) Processing volumes.** Processing volumes depend solely on the capacity of MILL. Historically we see that processing volumes at all deposits almost always reach MILL capacity (as a rule, they are always equal to maximum capacities). MILL constructions or improvements should be also calculated too. For example, starting from 2025, MILL-5 with a capacity of 8,000,000 tons will be launched. Thus, the deposit's total processing capacity will be 17,000,000 tons starting in 2017 (there is no heap leaching system at Blagodatnoye, i.e. maximum processing volumes are limited to the capacity of MILLS)

**3) Average grade in ore processed.** This indicator shows how many grams of gold are contained in the ore processed on average. As a rule, this indicator is very difficult to predict, since the variability of gold content in the deposit is quite high. Polyus, according to the JORC code, estimates the predicted values of this indicator in the annual report (**that is why forecast revenue can be much less than in reality until the time average gold grade will higher than fact in future**).

**4) Recovery rate.** This rate shows what percentage of gold can be obtained by processing the ore. Residual ore goes to the so-called "tailings", not replenishing the ore / gold reserves. Recovery rate was predicting as an average historical value, corrected to the new MILL constructions.

**5) MILL Capacity.** The capacity of a mill is one of the most key indicators, which determines the amount of revenue. After the launch of the new project, the MILL capacity at the field increases by almost 100%.

**6) Troy ounce.** The measure of conversion of grams of gold, which we received from the processing, into ounces.



## Key risks

### 1. Gold price fall

Volatility in gold prices could lead to significant adverse changes in the company's financial results

### 2. Ensuring financial stability of the Company

The risk of decrease in the short-term and medium-term financial stability of the Company due to the failure to achieve the planned production indicators, the overrun of capital and operating costs over the planned indicators, as well as due to occurrence of access restriction to the external financing in the future.

### 3. Strengthening the national currency

The majority of the Company's operating expenditure is incurred in Russian rubles. At the same time, the price of gold sales is tied to the US dollar. Therefore, the exchange rate of the ruble to the dollar may affect the Company's revenue.

### 4. Failure to confirm mineral resources and ore reserves

To a large extent the Company's operations depend on mineral resources and ore reserves. Unconfirmed quantity and quality of mineral resources may lead to lower production efficiency due to higher cost of mining operations, changes in processing technology, and decreased LOM. Accurate planning of ore quality properties depends in its turn on the volume and timeliness of in-fill drilling, quality of sample preparation and testwork, mining stages coordination and relevance of data on stockpiled material grades and volume.

### 5. Increased tax burden.

The Company timely and fully fulfills its tax liabilities. However, potential amendments in tax and levies legislation or its application practices as well as inconsistency in statutory interpretation by tax payers and tax authorities may impact the Company's financials.

### 6. Government relations

The requirements of applicable legislation presume flexibility in allocating of the state funds, as well as in the provision of tax benefits and state subsidies for infrastructure development.

### 7. Mining risks (pit wall failures)

Injury to personnel, damage to mining equipment and infrastructure, interruption of the production process as a result of a pit wall failure. The ongoing growth of the Company's open pits laterally and in depth is inevitably associated with the rise of the likelihood of a pit wall failure, which requires increased attention to issues of assessment, monitoring and control of slope stability. The realization of this risk may be associated with insufficient understanding of the geotechnical and hydrogeological conditions of the surrounding rock mass, deviation from design decisions, as well as violation of mining technology.

### 8. Diseases, workplace injuries and accidents

Main reasons for the risk occurrence are related to the human factors and failure to comply the HSE requirements by the personnel as well as to the threats to life and health arising from factors related to operations.

### 9. Negative impact on environment

The Company's operations are monitored and regulated by environment protection authorities as related to environmental impact and may potentially cause harm to its components. The Company acknowledges the significance of the consequences of climate change, which is why it is actively developing measures to reduce its own impact in this area and to adapt to a changing climate.

### 10. Rising competition for qualified personnel, including technical experts

Difficulties in recruiting sufficient number of skilled human resources as competition for personnel intensifies in the Russian market while the competence level of students at graduation from high schools is low especially in technical spheres. Social environment impacting the Company's image of a responsible employer. Prompt implementation of the initiatives on the transition to the Company's target operational model.

### 11. Information security

Potential occurrence of this risk is associated with violation of information security policies by the Company's employees or contractors, including personal data processing violations, as well as with organization and execution of cyber attacks on the Company's information assets.

### 12. Business interruption (production BUs)

The risk may be related to the failure to comply with the rules for production equipment operation, delays in maintenance programs as well as power equipment breakdowns and insufficient transmission capacity of internal power infrastructure.

