The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our financial statements and notes included in "Accountant's Report" as set out in Appendix I to this document. The financial information as set out in the Accountant's Report incorporates the financial statements of our Company during the Track Record Period. You should read the whole Accountant's Report as set out in Appendix I to this document and not rely merely on the information in this section. For the purpose of this section, unless the context otherwise requires, references to 2019, 2020 and 2021 refer to our financial years ended December 31 of such years.

The following discussion and analysis contains forward-looking statements that involve risks and uncertainties. These statements are based on assumptions and analysis made by us in light of our experience and perception of historical trends, current conditions and expected future developments, as well as other factors we believe are appropriate under the circumstances. You should not place undue reliance on any such statements. Our actual future results and timing of selected events could differ materially from those anticipated in these forward-looking statements as a result of various factors, including those set forth under "Risk Factors," "Forward-Looking Statements" and elsewhere in this document.

OVERVIEW

We are engaged in the production and sales of flake graphite concentrate and spherical graphite in the PRC. Our origins trace back to 2006 when we began our operations with Yixiang Graphite in the beneficiation and sales of flake graphite concentrate (primarily with a carbon content between 94% and 96.8%) and we expanded with Yixiang New Energy in the processing and sales of spherical graphite (primarily with a carbon content above 99%) in 2012. Due to the high carbon content of our flake graphite concentrate, which we believe was attributable to our beneficiation capabilities, they are suitable to be used as heat-resistant materials as well as further value-added applications, such as to be manufactured into spherical graphite and used as anode material in lithium-ion batteries for electronic devices and NEVs. As by-products of processing our spherical graphite, we sell micro graphite powder and high purity graphite powder, and as a by-product of our mining operations, we also sell unprocessed marble. During the year ended December 31, 2021, we sold approximately 37,300 tonnes of flake graphite concentrate and approximately 13,800 tonnes of spherical graphite and its by-products.

Our Group experienced moderate business growth during the Track Record Period, generating a total revenue of approximately RMB123.7 million, RMB168.7 million and RMB198.4 million, with a net profit generated of approximately RMB24.5 million, RMB37.9 million and RMB53.3 million, for the three years ended December 31, 2019, 2020 and 2021 respectively.

BASIS OF PRESENTATION

Our Company was incorporated in the Cayman Islands as an exempted company with limited liability on August 3, 2020. We have not been involved in any other business prior to the Reorganization and do not meet the definition of a business. The Reorganization is merely a recapitalization of our Group's business operations with no change in management of such business and the ultimate owners of our Group's business operations remain the same. The historical financial information of our Company has been prepared in accordance with principal accounting policies as set out below which are in accordance with HKFRSs issued by the HKICPA are set out in note 2.1 to the Accountant's Report contained in Appendix I to this document.

FACTORS AFFECTING OUR RESULTS OF OPERATIONS

Our financial condition, results of operations and the year-to-year comparability of our financial results are principally affected by the following factors:

Sales volume and average selling price

The sales volume of our graphite products has a substantial effect on our results of operations. Our sales volume largely depends upon our customer and market demand, our extraction, beneficiation and processing volume as well as changes in the PRC economy and market conditions. Our sales volume is mainly affected by the production plan of our processing facilities, which is generally prepared based on various factors, including but not limited to: (i) the delivery dates and volumes of our products stipulated in purchase orders from our customers; (ii) historical sales demand; and (iii) our production design capacity.

The pricing of our products has a direct impact on our results of operations and financial condition. We normally set the prices of our products based on monthly analyzes of market demands and we take into account a variety of factors, including but not limited to, our production costs and the product specifications required by our customers. During the Track Record Period, we experienced promising growth in our sales volume and revenue generated by our flake graphite concentrate and spherical graphite, whilst the average selling prices had been in a general decline between 2019 and 2020; and recorded an overall increase for our flake graphite concentrate and remained stable for our spherical graphite in 2021. The average selling price is considered to have a crucial impact on our results of operations.

For illustration purpose only, the following table illustrates the sensitivity analysis of hypothetical fluctuation in our average selling prices on gross profit, assuming all other factors are held constant, for the years indicated:

Percentage changes in average selling price	**Increase/(Decrease) in gross profit For the year ended December 31,**		
	2019	**2020**	**2021**
	(RMB'000)	*(RMB'000)*	*(RMB'000)*
+15%	18,560	25,312	29,755
+30%	37,121	50,625	59,510
–15%	(18,560)	(25,312)	(29,755)
–30%	(37,121)	(50,625)	(59,510)

The following table illustrates the sensitivity analysis of fluctuation in the price of our major products on gross profit, assuming all other factors held constant for the years indicated:

		Increase/(Decrease) in gross profit		
		2019	**2020**	**2021**
Percentage change in the price of each of its major products	Change	*RMB'000*	*RMB'000*	*RMB'000*
194	+15%	3,972	4,243	7,088
	+30%	7,944	8,486	14,176
	–15%	(3,972)	(4,243)	(7,088)
	–30%	(7,944)	(8,486)	(14,176)
195	+15%	2,121	5,329	6,271
	+30%	4,242	10,658	12,542
	–15%	(2,121)	(5,329)	(6,271)
	–30%	(4,242)	(10,658)	(12,542)
196	+15%	1,195	1,533	583
	+30%	2,390	3,065	1,167
	–15%	(1,195)	(1,533)	(583)
	–30%	(2,390)	(3,065)	(1,167)
SG-10	+15%	7,068	9,589	7,176
	+30%	14,137	19,178	14,353
	–15%	(7,068)	(9,589)	(7,176)
	–30%	(14,137)	(19,178)	(14,353)
Other model	+15%	1,500	786	6,366
	+30%	2,999	1,571	12,733
	–15%	(1,500)	(786)	(6,366)
	–30%	(2,999)	(1,571)	(12,733)
Micro graphite powder	+15%	1,065	943	1,206
	+30%	2,131	1,885	2,413
	–15%	(1,065)	(943)	(1,206)
	–30%	(2,131)	(1,885)	(2,413)

Extraction costs

Our Group adopts the open-pit mining method at our Beishan Mine. Such mining method is considered to result in lower operating costs and improve the efficiency of our operations as compared to underground mining methods. The extraction costs of unprocessed graphite mined from our Beishan Mine account for a noticeable portion of our cost of sales. The following table illustrates the extraction costs (including the capitalized amount) incurred for the three years ended December 31, 2019, 2020 and 2021:

	For the year ended December 31,		
	2019	**2020**	**2021**
	(RMB'000)	*(RMB'000)*	*(RMB'000)*
Depreciation	1,778	3,552	1,607
Blasting services	1,590	2,287	2,460
Fuel costs	1,911	1,668	1,805
Employees salaries and benefits	1,130	830	1,145
Machinery expenses	1,173	661	1,198
Amortization of mining rights	813	1,837	1,108
Raw materials	250	242	1,043
Repairs and maintenance	338	19	85
Mining project management and administrative expenses	1,102	—	—
Others[1]	718	291	529
Total	**10,803**	**11,387**	**10,980**
Portion capitalized[2]	7,040	1,656	3,504
Portion accounted for as cost of sales for the extraction of graphite[3]	3,763	5,606	5,195
Portion accounted for as cost of sales for the extraction of marble[3]	—	4,125	2,281
Total	**10,803**	**11,387**	**10,980**

Note:

1. Others include expenses in relation to workplace safety expenses, insurance on mining equipment, consumables and delivery of the dump truck.

2. The portion capitalized accounted for the amount to be capitalized as mining structures under our property, plant and equipment, which would be depreciated using the units of production method based on the total proved and probable reserves of the mine as the depletion base and recognized as depreciation under extraction costs in future. Mining structures primarily include the cost incurred to carry out waterproof engineering, construct on-site utilities systems and other miscellaneous infrastructure on the mining site, and the capitalization of the portion of costs incurred for mine extraction that is allocated to the stripping activities. Stripping activities exposed the Group to usable ore that can be used to produce inventory and improved access to further quantities of material that will be mined in future periods. To the extent the benefit is improved access to ore, the Group recognized these costs as mining structures under property, plant and equipment. The capitalization of extraction costs is made by using an allocation basis that is based on volume of waste extracted compared with expected volume of total extraction from the ore, for a given volume of ore production.

3. The cost of sales for the extraction of graphite and marble were allocated on the basis of the respective portions of graphite and marble extracted as measured in volume and were apportioned accordingly.

Major components of our extraction costs directly relate to our production volume. Variations in our production volume may significantly affect our production costs, which in turn, may affect our cost of sales. Additional capital expenditure may increase our depreciation and amortization, which may in turn also increase our production costs and cost of sales.

There is no assurance that future increase in our extraction costs will be offset by increase in our future selling prices, if any. If the growth of our unit costs outpaces the growth of our unit selling price, there may be a material and adverse impact on our gross margins, results of operations and financial condition.

For illustration purpose only, the following table illustrates the sensitivity analysis of hypothetical fluctuation in our extraction costs (after portion capitalized) on gross profit, assuming all other factors remained constant, for the years indicated:

Percentage changes in extraction costs	**Increase/(Decrease) in gross profit For the year ended December 31,**		
	2019	**2020**	**2021**
	(RMB'000)	*(RMB'000)*	*(RMB'000)*
+15%	564.5	1,459.7	1,121.4
+30%	1,128.9	2,919.3	2,242.8
–15%	564.5	1,459.7	1,121.4
–30%	1,128.9	2,919.3	2,242.8

PRC government policies and regulations

The mining industry in the PRC is subject to various laws, regulations and control measures from central, provincial and local authorities. Please see "Regulatory Overview and the JORC Code" in this document for a summary of the significant laws and regulations that our Group is subject to. The PRC government has full discretion and authority to grant, renew and terminate our Group's mining and production licenses and permits which are crucial for our business operations. There is no guarantee that the legal framework under which foreign-invested companies in the PRC operate may differ in various aspects from that under which domestic PRC companies operate. Any failure to obtain or renew the licenses and permits requisite for our business operations, or any substantial changes to the legal framework under which our principal PRC operating subsidiary operates could materially and adversely affect our business and results of operations.

Economic viability

An analysis on the various economics effects that may result from the implementation of our operations has been conducted by the Independent Technical Consultant. The analysis was based on capital and operating costs and production, beneficiation and mining schedules. A base case scenario of our operation over the life of mine (January 1, 2022 to 2024) on an annual basis was constructed. The base case is based on the mining, beneficiation and spherical graphite processing schedules as outlined in Table 6-5, Table 8-13 and Table 8-17 set forth in the Independent Technical Report. It envisages an integrated operation, from mining, beneficiation to spherical graphite processing. It does not include the proposed new beneficiation and spherical graphite processing plants at Beishan. This resulted in forecast sales prices (as below) and a discount rate of 10% be adopted by the Independent Technical Consultant. The discount rate was based on the considerations of the real, risk free long-term interest rate (2.59% for the five-year PRC Government bond yield), mining project risk (2% to 4%) and country risk (2% to 4%).

It is important to note that the purpose of Independent Technical Consultant's techno-economic analysis is to demonstrate the potential to provide a positive net present value and hence the economic viability of our operation in support of the declaration of the ore reserve. The techno-economic analysis is not a financial valuation and the derived NPVs are not intended to represent the market value (i.e. the cash equivalent value that may be obtained were the project placed up for sale through a structured process) or likely profitability of our operation.

For illustrative purpose, SRK's discounted cashflow analysis shows that our operations after tax (25% corporate income tax) net present value ("**NPV**") at a discount rate of 10% returned a positive NPV of RMB923 million as at 31 December 2021. A straight-line depreciation method was used; any financing costs, capital raising expenses or company debts have not been considered and a 100% equity has been assumed in this analysis.

The following sensitivity analysis (after tax), as below, has also been undertaken by the Independent Technical Consultant with respect to the flake graphite recovery, capital and operating costs and sales prices of flake graphite concentrate and spherical graphite:

Variance	Flake graphite recovery	Operating expenses	Capital expenditure	Flake graphite sales price	Spherical graphite sales price
25%	1,173	651	908	1,123	1,164
20%	1,123	706	911	1,083	1,115
15%	1,073	760	914	1,043	1,067
10%	1,023	814	917	1,003	1,019
5%	973	868	920	963	971
0.0%	923	923	923	923	923
–5%	872	977	926	882	874
–10%	822	1,031	929	842	826
–15%	772	1,085	931	802	778
–20%	722	1,139	934	762	730
–25%	672	1,194	937	722	682

The results reveal the following changes:

- A 1% increase in flake graphite recovery will result in a positive 1.09% change in NPV.
- A 1% increase in operating cost will result in a negative 1.18% change in NPV.
- A 1% increase in capital cost will result in a negative 0.06% change in NPV.
- A 1% increase in flake graphite concentrate sales price will result in a positive 0.87% change in NPV.
- A 1% increase in spherical graphite sales price will result in a positive 1.04% change in NPV.

Of these parameters, operating cost is the most sensitive parameter, followed by flake graphite recovery. For details, please see "Appendix III — Independent Technical Report — 9.3 Economic viability analysis".

SIGNIFICANT ACCOUNTING POLICIES, JUDGMENTS AND ESTIMATES

New standards and amendments to existing standards not yet adopted by our Group

The following are standards and amendments to existing standards that have been published and are relevant but not mandatory for the Track Record Period, and have not been early adopted by our Group.

		Effective for annual periods beginning on or after
Amendments to HKFRS 3	Reference to the Conceptual Framework	1 January 2022
Amendments to HKFRS 10 and HKAS 28	Sales or Contributions of Assets between an Investor and its Associate or Joint Venture	To be determined
HKFRS 17 and Amendments to HKFRS 17	Insurance Contracts	1 January 2023
Amendments to HKAS 1	Classification of Liabilities as Current or Non-current	1 January 2023
Amendments to HKAS 1 and HKFRS Practice Statement 2	Disclosure of Accounting Policies	1 January 2023
Amendments to HKAS 8	Definition of Accounting Estimates	1 January 2023
Amendments to HKAS 12	Deferred Tax Related to Assets and Liabilities Arising from a Single Transaction	1 January 2023
Amendments to HKAS 16	Property, Plant and Equipment — Proceeds before Intended Use	1 January 2022
Amendments to HKAS 37	Onerous Contracts — Cost of Fulfilling a Contract	1 January 2022

		Effective for annual periods beginning on or after
Annual Improvements to HKFRSs 2018–2020 Cycle	Amendments to HKFRS 1, HKFRS 9, HKFRS 16 and HKAS 41	1 January 2022
Amendments to Accounting Guideline 5	Merger Accounting for Common Control Combinations (Revised)	1 January 2022
Hong Kong Interpretation 5 (2020)	Presentation of Financial Statements — Classification by the Borrower of a Term Loan that Contains a Repayment on Demand Clause	1 January 2023

Our Group will adopt the above new or revised standards, amendments and interpretations to existing standards as and when they become effective. Our Board has performed preliminary assessment and these standards are not expected to have a material impact on our Group's financial position and results of operations upon adopting these standards, amendments and interpretations to existing standards.

Revenue recognition

Revenue is measured at the fair value of the consideration received or receivable for the sales of goods in the ordinary course of our Group's activities.

If contracts involve the sale of multiple elements, the transaction price will be allocated to each performance obligation based on their relative stand-alone selling prices. If the stand-alone selling prices are not directly observable, they are estimated based on expected cost plus a margin or adjusted market assessment approach, depending on the availability of observable information.

Revenue is recognized when or as the control of the good is transferred to the customer.

Depending on the terms of the contract and the laws that apply to the contract, control of the good may be transferred over time or at a point in time.

Control of the good is transferred over time if our Group's performance:

- provides all of the benefits received and consumed simultaneously by the customer;
- creates or enhances an asset that the customer controls as our Group performs; or
- does not create an asset with an alternative use to our Group and our Group has an enforceable right to payment for performance completed to date.

If the control of the goods transfers over time, revenue is recognized over the period of the contract by reference to the progress towards complete satisfaction of that performance obligation. Otherwise, revenue is recognized at a point in time when the customer obtains control of the goods or service. Specific criteria where revenue is recognized are described below.

Sales and distribution of goods

We principally manufacture and sell graphite products. Sales are recognized when control of the products has transferred to our customer, being when the products are delivered to the customer, and there is no unfulfiled obligation that could affect the customer's acceptance of the products. Delivery occurs when the products have been shipped to the specific location, the risks of obsolescence and loss have been transferred to the customer, and either the customer has accepted the products in accordance with the sales contract, the acceptance provisions have lapsed, or we have objective evidence that all criteria for acceptance have been satisfied.

Revenue from these sales is recognized based on the price specified in the contract, net of value-added tax, rebates and returns. Revenue is only recognized to the extent that it is highly probable that a significant reversal will not occur. No element of financing is deemed present as the sales are made on cash or with a credit term of not more than 90 days. A receivable (financial asset) is recognized when the goods are delivered as this is the point in time that the consideration is unconditional because only the passage of time is required before payment is due.

Property, plant and equipment

Property, plant and equipment, other than construction in progress, are stated at historical cost less depreciation. Historical cost includes expenditure that is directly attributable to the acquisition of the items.

Subsequent costs are included in the assets' carrying amounts or recognized as a separate asset, as appropriate, only when it is probable that future economic benefits associated with the asset will flow to our Group and the cost of the asset can be measured reliably. The carrying amount of the replaced part is derecognized. All other repairs and maintenance are expensed in the consolidated statements of comprehensive income during the financial period in which they are incurred.

Depreciation is calculated using the straight-line method to allocate their cost or revalued amounts, net of their residual values, over their estimated useful lives or, in the case of leasehold improvements and certain plant and machines, the shorter lease term as follows:

Plant and buildings	20 years
Machinery and equipment	3–10 years
Motor vehicles	4–5 years
Furniture and fixtures	3–5 years

Depreciation on mining structures is provided to write off the cost of the mining structures using the units of production method based on the total proved and probable reserves of the mine as the depletion base.

The assets' residual values and useful lives are reviewed, and adjusted if appropriate, at the end of each reporting period.

CIP is stated at cost less impairment losses. Cost comprises direct costs of construction as well as borrowing costs capitalized during the periods of construction and installation. Capitalization of these costs ceases and the CIP is transferred to the appropriate class of property, plant and equipment when substantially all the activities necessary to prepare the assets for their intended use are completed. No depreciation is provided for in respect of CIP until it is completed and ready for its intended use.

An asset's carrying amount is written down immediately to its recoverable amount if the asset's carrying amount is greater than its estimated recoverable amount.

Gains and losses on disposals are determined by comparing proceeds with carrying amount. These are included in profit or loss.

Intangible assets — Mining rights

Mining rights are stated at cost less accumulated amortization and accumulated impairment losses and are amortized on the units of production method based on the total proven and probable reserves of the mine.

	Year ended December 31,		
	2019	**2020**	**2021**
	RMB'000	*RMB'000*	*RMB'000*
Opening net carrying amount	13,034	20,562	27,013
Additions	8,341	8,288	—
Amortization	(813)	(1,837)	(1,108)
Closing net carrying amount	20,562	27,013	25,905
Gross carrying amount	21,375	29,663	29,663
Accumulated amortization	(813)	(2,650)	(3,758)
Net carrying amount	20,562	27,013	25,905

The opening net carrying amount of approximately RMB13.0 million in 2019 was brought forward from the opening net carrying amount of approximately RMB9.9 million in 2018, which includes the prospecting right obtained by Yixiang New Energy in 2015 and exploration fees incurred by our Group between 2015 and 2017 and the payment of approximately RMB3.1 million for the mineral rights of marble ores in our Beishan Mine.

On May 25, 2015, Yixiang New Energy entered into the prospecting right transfer agreement with Department of Land and Resources of Heilongjiang Province of the PRC, pursuant to which Department of Land and Resources of Heilongjiang Province of the PRC transferred the prospecting right to Yixiang New Energy at a consideration of approximately RMB5.1 million. On December 1, 2015, Yixiang New Energy further obtained the permit for mineral resources exploration issued by the Ministry of Land and Resources of the PRC with prospecting right over an exploration area of 6.06 square kilometers located in Luobei County, Hegang City, Heilongjiang Province, PRC. In order to explore the geological conditions, topographic conditions and resource reserves related to our Beishan Mine, Yixiang New Energy then engaged Harbin Ruifa Mineral Exploration Company Limited, a qualified third-party exploration company, to conduct exploration work between 2015 and 2017 at a total consideration of approximately RMB4.8 million. In the course of exploration, it was discovered that in addition to graphite, there were also marble ores in the area. Yixiang New Energy was required to pay to the Department of Land and Resources of Heilongjiang Province of the PRC a fee of approximately RMB3.1 million in 2018 for the mineral rights of marble ores in the mine. Therefore, together with the additions in the amount of approximately RMB3.1 million, the gross carrying amount of our Group's mining rights was approximately RMB13.0 million as at December 31, 2018.

In 2019, Yixiang New Energy was required to pay to Yunshan Forestry of Luobei County and the Heilongjiang Province a total amount of approximately RMB8.3 million as consideration for changing the land use of the mine from "forest" to "commercial" use. Such consideration related to the occupied forest land was divided into two parts, which included the fee for relevant forest vegetation restoration of approximately RMB5.7 million in the first phase of Yixiang New Energy's development project of the mine, and a consideration of approximately RMB2.6 million paid to Yunshan Forestry of Luobei County pursuant to the agreement entered into between Yixiang New Energy and Yunshan Forestry of Luobei County. The assessment of consideration was based on the number of forest trees used and the area of the forest land occupied, with Yixiang New Energy occupying approximately 14,778 trees and 9.6 hectares of state-owned forest land. The gross carrying amount was approximately RMB21.4 million as at December 31, 2019 with such additions in the amount of approximately RMB8.3 million. There was an amortization of approximately RMB0.8 million for the year ended December 31, 2019.

In the second phase of the Yixiang New Energy's development project of the mine in 2020, Yixiang New Energy paid a sum of approximately RMB2.6 million pursuant to the agreement entered into between Yixiang New Energy and Yunshan Forestry of Luobei County, which was determined based on the number of forest trees used and the occupied area of the forest land, with Yixiang New Energy occupying approximately 16,773 trees and 9.4 hectares of state-owned forest land. Together with the fee of approximately RMB5.7 million paid to Heilongjiang Province, the additions in the amount of approximately RMB8.3 million were recorded for 2020, thereby increasing the gross carrying amount of our mining rights to approximately RMB29.7 million as at December 31, 2020. There was an amortization of approximately RMB1.8 million for the year ended December 31, 2020.

We recorded an amortization of approximately RMB1.1 million for the year ended December 31, 2021 as compared to approximately RMB1.8 million in 2020, the decrease of which was mainly due to the decrease of unprocessed marble being extracted in 2021. The net carrying amount of our mining rights decreased to approximately RMB25.9 million, and the gross carrying amount remained at approximately RMB29.7 million.

Impairment of mining rights that are subject to amortization is tested for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. We considered that there is no impairment indicator on the mining rights as at each of the year end date and, as such, no impairment assessment has been performed.

Other Intangible assets

Our other intangible assets primarily comprise of patents held by us. Our other intangible assets decreased from approximately RMB63,000 as at December 31, 2019 to RMB35,000 as at December 31, 2021 primarily due to amortization charge in the same period. We amortize other intangible assets using the straight-line method over the expected useful life of respective intangible asset ranged from two to 20 years.

Current and deferred income tax

The income tax expense or credit for the period is the tax payable on the current period's taxable income based on the applicable income tax rate for each jurisdiction adjusted by changes in deferred tax assets and liabilities attributable to temporary differences and to unused tax losses.

Current income tax

The current income tax charge is calculated on the basis of the tax laws enacted or substantively enacted at the consolidated statements of financial position date in the places where our Company and its subsidiaries operate and generate taxable income. Our Board periodically evaluates positions taken in tax returns with respect to situations in which applicable tax regulation is subject to interpretation. It establishes provisions where appropriate on the basis of amounts expected to be paid to the tax authorities.

Deferred income tax

Deferred income tax is provided in full, using the liability method, on temporary differences arising between the tax bases of assets and liabilities and their carrying amounts in the consolidated financial statements. However, deferred tax liabilities are not recognized if they arise from the initial recognition of goodwill. Deferred income tax is also not accounted for if it arises from initial recognition of an asset or liability in a transaction other than a business combination that at the time of the transaction affects neither accounting nor taxable profit or loss. Deferred income tax is determined using tax rates (and laws) that have been enacted or substantially enacted by the end of the reporting period and are expected to apply when the related deferred income tax asset is realized or the deferred income tax liability is settled.

Deferred tax assets are recognized only if it is probable that future taxable amounts will be available to utilize those temporary differences and losses.

Deferred tax liabilities and assets are not recognized for temporary differences between the carrying amount and tax bases of investments in foreign operations where our company is able to control the timing of the reversal of the temporary differences and it is probable that the differences will not reverse in the foreseeable future.

Inventories

Raw materials, work in progress and finished goods are stated at the lower of cost and net realizable value. Cost comprises direct materials, direct labor and an appropriate proportion of variable and fixed overhead expenditure, the latter being allocated on the basis of normal operating capacity. Costs are assigned to individual items of inventory on the basis of weighted average costs. Costs of purchased inventory are determined after deducting rebates and discounts. Net realizable value is the estimated selling price in the ordinary course of business less the estimated costs of completion and the estimated costs necessary to make the sale.

Trade and other receivables

Trade receivables are amounts due from customers for goods sold or services performed in the ordinary course of business. They are generally due for settlement within 90 days and therefore all classified as current. Trade and other receivables are recognized initially at the amount of consideration that is unconditional unless they contain significant financing components, when they are recognized at fair value. Our Group holds the trade and other receivables with the objective of collecting the contractual cash flows and therefore measures them subsequently at amortized cost using the effective interest method.

Research and development expenses

Costs associated with the enhancement of production process are recognized as an expense as incurred. Only development costs that are directly attributable to the design and testing of identifiable and unique production process controlled by the Group are recognised as intangible assets where the capitalization criteria stated under HKAS 38 are met.

Research expenditure and development expenditure that do not meet the capitalisation criteria are recognised as an expense as incurred. Development costs previously recognised as an expense are not recognised as an asset in a subsequent period.

RESULTS OF OPERATIONS

The following table sets forth the consolidated statements of comprehensive income for the years indicated:

	Year ended December 31,		
	2019	**2020**	**2021**
	(RMB'000)	*(RMB'000)*	*(RMB'000)*
Revenue	123,736	168,749	198,365
Cost of sales	(64,309)	(85,502)	(105,322)
Gross profit	59,427	83,247	93,043
Other income and other gains, net	663	300	8,033
Selling and distribution expenses	(14,299)	(9,393)	(10,138)
General and administrative expenses	(9,019)	(18,770)	(19,738)
Research and development expenses	(4,820)	(5,830)	(8,118)
Reversal of/(provision for) impairment of financial assets	194	(349)	(1,463)
Operating profit	32,146	49,205	61,619
Finance income	12	18	54
Finance costs	(435)	(778)	(834)
Finance costs, net	(423)	(760)	(780)
Profit before income tax	31,723	48,445	60,839
Income tax expense	(7,174)	(10,586)	(7,514)
Profit for the year	24,549	37,859	53,325
Profit attributable to:			
Owner of the Company	24,549	36,884	53,325
Non-controlling interests	—	975	—
Profit for the year	**24,549**	**37,859**	**53,325**
Non-HKFRSs information[(1)]:			
Net profit for the financial year	24,549	37,859	53,325
Add: [REDACTED]	—	[REDACTED]	[REDACTED]
Adjusted profit for the financial year	**24,549**	**[REDACTED]**	**[REDACTED]**

Note:

1. Adjusted profit for the year is derived by excluding the [REDACTED]. The term of adjusted profit is not defined under HKFRSs. The adjusted profit for the year was presented because our Directors believe that it is a useful supplement to the consolidated statements of comprehensive income as it reflects our profitability from our operations without taking into consideration of the [REDACTED]. However, the adjusted profit for the year should not be considered in isolation or construed as an alternative to gross profit or profit for the year prepared in accordance with HKFRSs, and shall be used for illustrative purpose only. Potential [REDACTED] should be aware that the adjusted profit for the year presented in this document may not be comparable to similarly titled measures reported by other companies due to differences in the components of the calculation.

PRINCIPAL INCOME STATEMENT COMPONENTS

Revenue

During the Track Record Period, we generated our revenue primarily from (i) the sale of flake graphite concentrate; (ii) the sale of spherical graphite and its by-products; and (iii) the sale of unprocessed marble. We only began generating revenue from the sale of unprocessed marble in the year ended December 31, 2020, after obtaining the mining rights to our Beishan Mine in the year ended December 31, 2019. The following table sets forth the revenue generated from each business segment for the years indicated:

	For the year ended December 31,					
	2019		2020		2021	
	(RMB'000)	*(%)*	*(RMB'000)*	*(%)*	*(RMB'000)*	*(%)*
Sale of flake graphite concentrate	57,374	46.4	85,709	50.8	97,672	49.2
Sale of spherical graphite and its by-products	66,362	53.6	76,159	45.1	98,509	49.7
Sale of unprocessed marble	—	—	6,881	4.1	2,184	1.1
Total	**123,736**	**100.0**	**168,749**	**100.0**	**198,365**	**100.0**

For the years ended December 31, 2019, 2020 and 2021, we sold (i) approximately 18,400 tonnes, 34,100 tonnes and 37,300 tonnes of flake graphite concentrate; (ii) approximately 8,300 tonnes, 10,400 tonnes and 13,800 tonnes of spherical graphite and its by-products; and (iii) nil, approximately 675,200 tonnes and 341,700 tonnes of unprocessed marble, respectively. All of our revenue during the Track Record Period were generated from customers located in the PRC.

Revenue generated from the sale of flake graphite concentrate

The sale of our processed flake graphite concentrate accounted for approximately 46.4%, 50.8% and 49.2% of our total revenue for the three years ended December 31, 2019, 2020 and 2021, respectively. We have been selling flake graphite concentrate since our business was founded in 2006, with a focus on those with a carbon content between 94% and 96.8%. For the three years ended December 31, 2019, 2020 and 2021, sales from our flake graphite concentrate, mainly included types, "194" (indicating a carbon content of 94% or from 94% to less than 95%), "195" (indicating a carbon content of 95% or from 95% to less than 96%) and "196" (indicating a carbon content of 96% or from

96% to 96.8%) generated a revenue of approximately RMB48.6 million, RMB74.0 million and RMB92.9 million, respectively. The following table summarizes the revenue generated by, the sales volume and the average selling prices of our flake graphite concentrate during the Track Record Period:

	For the year ended December 31,								
	2019			2020			2021		
Type	Revenue	Sales volume	Average selling price	Revenue	Sales volume	Average selling price	Revenue	Sales volume	Average selling price
	(RMB'000)	*(Tonnes)*	*(RMB/tonne)*	*(RMB'000)*	*(Tonnes)*	*(RMB/tonne)*	*(RMB'000)*	*(Tonnes)*	*(RMB/tonne)*
194	26,479	8,396	3,154	28,288	11,132	2,541	47,254	18,094	2,612
195	14,139	4,007	3,529	35,525	13,837	2,567	41,806	15,803	2,645
196	7,968	2,002	3,980	10,218	3,671	2,783	3,889	1,339	2,904
Others[(1)]	8,788	3,996	2,199	11,678	5,494	2,126	4,723	2,022	2,336
Total	**57,374**	**18,401**		**85,709**	**34,134**		**97,672**	**37,258**	

Note:

(1) Others primarily include flake graphite concentrates of other carbon content specifications.

Our revenue generated from the sale of flake graphite concentrate is determined by our average selling price and sale volume. Our Directors believe that the selling price of our flake graphite concentrate is generally influenced by factors such as production costs and product specifications required by our customers. For instance, there is a general increase in the average selling price of each type of our flake graphite concentrate by the percentage of carbon content due to the extra processes involved. Our Directors believe that, due to the standardized nature of such flake graphite concentrate, our products may be price sensitive and easily replicated by competitors. Hence, our advantage on selling flake graphite concentrate primarily lies with effective cost structure through an integrated supply chain, which was improved after obtaining the mining rights to our Beishan Mine. Another key to our success in generating revenue from the sales of flake graphite concentrate is our ability to secure new customers, or secure more orders from existing customers. This is considered to be a major contributory factor to the general increase in our revenue generated from the sales of flake graphite concentrate during the Track Record Period.

Across all the three main types of flake graphite concentrate during the Track Record Period, there had been a general increasing trend for sales volume and revenue generated, whilst there was a decline for the average selling prices between 2019 and 2020. The decrease in the average selling prices of such three key types between the years ended December 31, 2019 and 2020 was mainly due to our Directors decided to provide discounts to existing customers who might be facing difficulties during the COVID-19 outbreak, and further discounts were given to two newly engaged major customers during the same year.

Revenue generated from the sale of spherical graphite and by-products

The sale of our spherical graphite generated represented approximately 53.6%, 45.1% and 49.7% of our total revenue for the three years ended December 31, 2019, 2020 and 2021, respectively. We have been selling spherical graphite since September 2012, all of which with a carbon content between 95% and 99.5%. Model numbers of our spherical graphite (i.e. SG-10 being the spherical graphite with a radius of 10 μm) are designated according to the size of the spherical graphite processed, with other model numbers designated according to the density, purity or shape of the spherical graphite. Within the SG-10 model, there may be many variances based on the density and purity which would have an effect on its selling price. Owing to such a wide and diverse of variances within one model, the revenue generated by the sale of our SG-10 spherical graphite accounted for approximately 71.0%, 83.9% and 48.6% of our revenue from the sale of spherical graphite and by-products for the three years ended December 31, 2019, 2020 and 2021. As by-products of processing our spherical graphite, we also produce and sell micro graphite powder and high-purity graphite powder. The following table summarizes the revenue generated, the sales volume and the average selling prices of our spherical graphite and its by-products during the Track Record Period:

	For the year ended December 31,								
	2019			2020			2021		
	Revenue generated *(RMB'000)*	Sales volume *(Tonnes)*	Average selling price *(RMB/tonne)*	Revenue generated *(RMB'000)*	Sales volume *(Tonnes)*	Average selling price *(RMB/tonne)*	Revenue generated *(RMB'000)*	Sales volume *(Tonnes)*	Average selling price *(RMB/tonne)*
Spherical graphite									
SG-10	47,122	2,343	20,112	63,926	3,479	18,375	47,842	3,059	15,638
Other models	9,998	645	15,501	5,237	444	11,795	42,443	3,002	14,138
Subtotal	**57,120**	**2,988**		**69,163**	**3,923**		**90,285**	**6,061**	
Micro graphite powder	7,103	5,049	1,407	6,284	6,296	998	8,043	7,733	1,040
High-purity graphite powder	2,139	282	7,585	712	134	5,313	181	48	3,771
Total	**66,362**	**8,319**		**76,159**	**10,353**		**98,509**	**13,842**	

Our revenue generated from the sale of spherical graphite is determined by factors such as production costs and our average selling price and sales volume. The selling price of our spherical graphite is generally influenced by the product specifications, as orders for our spherical graphite products are often made upon request by customers, with designated specifications and tailored instructions. The average selling price of our SG-10 products was lowered in the year ended December 31, 2020 as compared to 2019 as we aim to maintain customer relationships during the COVID-19 outbreak. The decrease in the average selling price of our SG-10 products for the year ended December 31, 2021 as compared to the corresponding period in 2020 was primarily attributable to a decreased sales of a high-density version of the model from approximately 14% of SG-10 high density model in 2020 to 11% of SG-10 high density model in 2021, as SG-10 lower density model had lower average selling price at approximately RMB15,200 per tonne and our adoption of our market competitive pricing strategy.

Cost of sales

Our cost of sales consisted of primarily (i) raw materials and consumables; (ii) electricity fees; (iii) extraction costs; (iv) direct labor costs; (v) depreciation; (vi) maintenance fees; (vii) subcontractor fees; and (viii) outsourcing charges. During the Track Record Period, our cost of sales accounted for approximately RMB64.3 million, RMB85.5 million and RMB105.3 million, representing approximately 52.0%, 50.7% and 53.1% of our total revenue for the respective years. The following table summarizes our cost of sales by nature during the Track Record Period:

	For the year ended December 31,					
	2019		**2020**		**2021**	
	(RMB'000)	*(%)*	*(RMB'000)*	*(%)*	*(RMB'000)*	*(%)*
Raw materials and consumables	25,217	39.2	40,872	47.8	49,854	47.3
Electricity fees	21,588	33.6	22,464	26.3	23,031	21.9
Extraction costs	3,763	5.9	9,731	11.4	7,476	7.1
Direct labor costs	6,815	10.6	5,600	6.5	4,784	4.5
Depreciation	4,114	6.4	4,636	5.4	8,350	7.9
Maintenance fees	1,170	1.8	1,075	1.3	267	0.3
Subcontractor fees	—	—	164	0.2	6,497	6.2
Outsourcing charges	—	—	—	—	3,070	2.9
Others(1)	1,642	2.5	960	1.1	1,993	1.9
Total	**64,309**	**100.0**	**85,502**	**100.0**	**105,322**	**100.0**

Note:

1. Others include taxes and miscellaneous expenses.

Extraction costs

The following table illustrates the extraction costs (including the capitalized amount) incurred for the three years ended December 31, 2019, 2020 and 2021:

	For the year ended December 31,		
	2019	**2020**	**2021**
	(RMB'000)	*(RMB'000)*	*(RMB'000)*
Depreciation	1,778	3,552	1,607
Blasting services	1,590	2,287	2,460
Fuel costs	1,911	1,668	1,805
Employees salaries and benefits	1,130	830	1,145
Machinery expenses	1,173	661	1,198
Amortization of mining rights	813	1,837	1,108
Raw materials	250	242	1,043
Repairs and maintenance	338	19	85
Mining project management and administrative expenses	1,102	—	—
Others[1]	718	291	529
Total	**10,803**	**11,387**	**10,980**
Portion capitalized[2]	7,040	1,656	3,504
Portion accounted for as cost of sales for the extraction of graphite[3]	3,763	5,606	5,195
Portion accounted for as cost of sales for the extraction of marble[3]	—	4,125	2,281
Total	**10,803**	**11,387**	**10,980**

Note:

1. Others include expenses in relation to workplace safety expenses, insurance on mining equipment, consumables and delivery of the dump truck.

2. The portion capitalized accounted for the amount to be capitalized as mining structures under our property, plant and equipment, which would be depreciated using the units of production method based on the total proved and probable reserves of the mine as the depletion base and recognized as depreciation under extraction costs in future. Mining structures primarily include the cost incurred to carry out waterproof engineering, construct on-site utilities systems and other miscellaneous infrastructure on the mining site, and the capitalization of the portion of costs incurred for mine extraction that is allocated to the stripping activities. Stripping activities exposed the Group to usable ore that can be used to produce inventory and improved access to further quantities of material that will be mined in future periods. To the extent the benefit is improved access to ore, the Group recognized these costs as mining structures under property, plant and equipment. The capitalization of extraction costs is made by using an allocation basis that is based on volume of waste extracted compared with expected volume of total extraction from the ore, for a given volume of ore production.

3. The cost of sales for the extraction of graphite and marble was allocated on the basis of the respective portions of graphite and marble extracted as measured in volume and were apportioned accordingly.

Below is a table setting out a comparison between the costs of unprocessed graphite procured from third party suppliers and extracted from our Beishan Mine:

	For the year ended December 31								
	2019			2020			2021		
	Tonnes	Costs	Costs per tonne	Tonnes	Costs	Costs per tonne	Tonnes	Costs	Costs per tonne
		(RMB'000)	*(RMB)*		*(RMB'000)*	*(RMB)*		*(RMB'000)*	*(RMB)*
Unprocessed graphite purchased from suppliers	171,000	10,773	63	189,500	14,213	75	254,200	19,065	75
Unprocessed graphite extracted from our Beishan Mine	255,500	3,763	14.7	211,200	5,606	26.5	258,300	5,195	20.1

Our sourcing of unprocessed graphite includes procurement from third party suppliers and extraction from our Beishan Mine. For the three years ended December 31, 2019, 2020 and 2021, we purchased approximately 171,000 tonnes, 189,500 tonnes and 254,200 tonnes unprocessed graphite from our suppliers, for approximately RMB10.8 million, RMB14.2 million and RMB19.1 million, respectively. The unit costs for unprocessed graphite procured from our suppliers accounted for approximately RMB63, RMB75 and RMB75 per tonne. On the other hand, we extracted approximately 255,500 tonnes, 211,200 tonnes and 258,300 tonnes unprocessed graphite from our Beishan Mine, at the extraction costs of approximately RMB3.8 million, RMB5.6 million and RMB5.2 million, thus approximately RMB14.7 per tonne, RMB26.5 per tonne and RMB20.1 per tonne for the three years ended December 31, 2019, 2020 and 2021, respectively. These extraction costs are based on the portion accounted for as cost of sales for the extraction of graphite from our total extraction costs, which includes costs of depreciation, blasting services, fuel costs, employee salaries and benefits, machinery expenses, raw materials, repair and maintenance and other costs and amortization costs of our mining rights. For the three years ended December 31, 2019, 2020 and 2021, the operating cash cost of extracting unprocessed graphite from our Beishan Mine amounted to approximately RMB8.2 million, RMB3.8 million and RMB6.4 million, respectively, representing approximately RMB32.1, RMB17.9 and RMB25.0 per tonne, respectively, which was calculated based on the portion accounted for as cost of sales for the extraction of graphite from our total extraction costs plus the portion capitalized and deducting the depreciation attributable to the extraction of graphite and amortization of mining rights.

In the hypothetical case that there is a disruption in extraction of our Beishan Mine and we are required to source all the unprocessed graphite at approximately 258,300 tonnes from procurement of third party suppliers, our Directors expect that: (i) we would incur an additional procurement costs for sourcing additional unprocessed graphite from our suppliers of approximately RMB19.4 million; (ii) we would incur an additional transportation costs for delivery of unprocessed graphite from the mines of suppliers to our site of approximately RMB9.8 million per annum; (iii) there would be a decrease of revenue generated from the sales of unprocessed marble for approximately RMB2.2 million per annum; (iv) there would be no incurrence of extraction costs for our mining operation for approximately RMB7.5 million; and (v) taking into account the above adjustments, our gross profit margin is estimated to decrease to approximately 35.3% for the year ended December 31, 2021. The above estimation is based on (i) historical financial data of 2021; and (ii) half of volume is procured from existing suppliers and remaining half from other suppliers in Heilongjiang Province, the PRC. Our Group's liquidity in terms of cash generated from our operating activities is also estimated to be adversely affected as a result of decrease in overall profitability attributable to the decrease of our gross profit margin. Please see "Risk Factor — Failure to obtain, retain and renew governmental approvals, permits and licenses required for our operations could materially and adversely affect our business, financial condition and results of operations".

Unit cost by product

A unit cost is a total expenditure incurred by our Group to produce, store, and sell one unit (one tonne) of our graphite products. During the Track Record Period, our unit cost for flake graphite concentrate and spherical graphite generally recorded a decreasing trend between 2019 and 2020 and remained stable in 2021.

Flake graphite concentrate

	For the year ended December 31,								
	2019			2020			2021		
	Cost of sales	Sales volume	Average unit cost	Cost of sales	Sales volume	Average unit cost	Cost of sales	Sales volume	Average unit cost
	(RMB'000)	*(Tonnes)*	*(RMB'000/ tonne)*	*(RMB'000)*	*(Tonnes)*	*(RMB'000/ tonne)*	*(RMB'000)*	*(Tonnes)*	*(RMB'000/ tonne)*
Flake graphite concentrate									
194	12,747	8,396	1.5	12,510	11,132	1.1	21,730	18,094	1.2
195	6,198	4,007	1.5	16,584	13,837	1.2	19,449	15,803	1.2
196	3,426	2,002	1.7	5,024	3,671	1.4	2,003	1,339	1.5
Others	6,631	3,996	1.7	6,086	5,494	1.1	2,530	2,022	1.3
Total	**29,002**	**18,401**		**40,204**	**34,134**		**45,712**	**37,258**	

Spherical graphite

	For the year ended December 31,								
	2019			2020			2021		
	Cost of sales	Sales volume	Average unit cost	Cost of sales	Sales volume	Average unit cost	Cost of sales	Sales volume	Average unit cost
	(RMB'000)	*(Tonnes)*	*(RMB'000/ tonne)*	*(RMB'000)*	*(Tonnes)*	*(RMB'000/ tonne)*	*(RMB'000)*	*(Tonnes)*	*(RMB'000/ tonne)*
Spherical graphite									
SG-10	22,446	2,343	9.6	31,809	3,479	9.1	29,627	3,059	9.7
Other models	5,892	645	9.1	3,251	444	7.3	21,332	3,002	7.1
Subtotal	28,338	2,988		35,060	3,923		50,959	6,061	
Micro graphite powder	5,376	5,049	1.1	5,489	6,296	0.9	6,167	7,733	0.8
High-purity graphite powder	1,593	282	5.7	624	134	4.7	203	48	4.2
Total	**35,307**	**8,319**		**41,173**	**10,353**		**57,329**	**13,842**	

Gross profit and gross profit margin

For the three years ended December 31, 2019, 2020 and 2021, our gross profit amounted to approximately RMB59.4 million, RMB83.2 million and RMB93.0 million, representing a gross profit margin of approximately 48.0%, 49.3% and 46.9%, respectively. The following table summarizes our gross profit and gross profit margin breakdown by business segment during the Track Record Period:

	For the year ended December 31,					
	2019		2020		2021	
	Gross profit *(RMB'000)*	Gross profit margin *(%)*	Gross profit *(RMB'000)*	Gross profit margin *(%)*	Gross profit *(RMB'000)*	Gross profit margin *(%)*
Sale of flake graphite concentrate	28,372	49.5	45,505	53.1	51,960	53.2
Sale of spherical graphite and its by-products	31,055	46.8	34,986	45.9	41,180	41.8
Sale of unprocessed marble	—	—	2,756	40.1	(97)	(4.4)
Gross profit/gross profit margin	**59,427**	**48.0**	**83,247**	**49.3**	**93,043**	**46.9**

Other income and other gains, net

Our other income and other gains, net mainly consisted of government grants and gains/(losses) on disposal of property, plant and equipment. The following table summarizes our other income and other gains during the Track Record Period:

	For the year ended December 31,		
	2019 *(RMB'000)*	2020 *(RMB'000)*	2021 *(RMB'000)*
Other income			
Government grants	500	630	7,858
Others	68	5	163
Other gains/(losses), net			
Gains/(losses) on disposal of property, plant and equipment, net	95	(335)	12
Total	**663**	**300**	**8,033**

Selling and distribution expenses

Our selling and distribution expenses during the Track Record Period mainly consisted of (i) transportation fees; (ii) employees salaries and benefits; (iii) sales agency fees; (iv) marketing fees; (v) rental expenses; and (vi) outsourcing charges.

For the three years ended December 31, 2019, 2020 and 2021, our selling and distribution expenses accounted for approximately RMB14.3 million, RMB9.4 million and RMB10.1 million, representing approximately 11.6%, 5.6% and 5.1% of our total revenue for the respective years. The following table summarizes our selling and distribution expenses by nature during the Track Record Period:

	For the year ended December 31,					
	2019		2020		2021	
	(RMB'000)	*(%)*	*(RMB'000)*	*(%)*	*(RMB'000)*	*(%)*
Transportation fees	6,253	43.7	8,032	85.5	7,905	78.0
Employee salaries and benefits	1,341	9.4	1,257	13.4	847	8.4
Marketing fees	3,719	26.0	4	0.0	—	—
Rental expenses	2,000	14.0	—	—	—	—
Sales agency fees	903	6.3	—	—	—	—
Outsourcing charges	—	—	—	—	1,230	12.1
Others(1)	83	0.6	100	1.1	156	1.5
Total	**14,299**	**100.0**	**9,393**	**100.0**	**10,138**	**100.0**

Note:

1. Others mainly include travelling and utilities expenses

Our transportation fees represented those expenses involved in the transport of unprocessed graphite to our production sites, and the delivery of our finished products from our site to a location designated by our customers; our marketing fees mainly represented advertisement and sponsoring of industry events; and our sales agency fees represented expenses incurred when we engaged third-party customer relationship service providers during the Track Record Period. For details, please see "Business — Our business model — sales and marketing" and "Business — Inventory management — Logistics".

General and administrative expenses

Our general and administrative expenses during the Track Record Period mainly consisted of (i) employees salaries and benefits; (ii) depreciation; (iii) professional fees; and (iv) [REDACTED].

For the three years ended December 31, 2019, 2020 and 2021, our general and administrative expenses accounted for approximately RMB9.0 million, RMB18.8 million and RMB19.7 million, representing approximately 7.3%, 11.1% and 10.0% of our total revenue for the respective years. The following table summarizes our general and administrative expenses by nature during the Track Record Period:

	For the year ended December 31,					
	2019		2020		2021	
	(RMB'000)	*(%)*	*(RMB'000)*	*(%)*	*(RMB'000)*	*(%)*
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Employee salaries and benefits	3,546	39.3	5,479	29.2	5,959	30.2
Outsourcing charges	—	—	—	—	411	2.1
Professional fees	1,281	14.2	2,145	11.4	2,007	10.2
Depreciation	1,113	12.3	1,105	5.9	1,092	5.5
Travel and entertainment expenses	767	8.5	789	4.2	703	3.6
Office and maintenance expenses	1,307	14.5	339	1.8	893	4.5
Others[1]	1,005	11.2	699	3.7	1,792	9.0
Total	**[REDACTED]**	**[REDACTED]**	**[REDACTED]**	**[REDACTED]**	**[REDACTED]**	**[REDACTED]**

Note:

1. Others include repair, utilities and miscellaneous expenses.

Research and development expenses

Our research and development expenses during the Track Record Period mainly consisted of raw materials, electricity, employees salaries and benefits, molding fees and others. For the three years ended December 31, 2019, 2020 and 2021, our research and development expenses accounted for approximately RMB4.8 million, RMB5.8 million and RMB8.1 million, representing approximately 3.9%, 3.5% and 4.1% of our total revenue for the respective years. For details of our research and development efforts, please see "Business — Research and development". The following table summarizes our research and development expenses by nature, during the Track Record Period:

	For the year ended December 31,					
	2019		**2020**		**2021**	
	(RMB'000)	*(%)*	*(RMB'000)*	*(%)*	*(RMB'000)*	*(%)*
Raw materials	1,214	25.2	2,564	44.0	2,703	33.3
Electricity	1,211	25.1	1,883	32.3	3,222	39.7
Employee salaries and benefits	1,041	21.6	853	14.6	1,622	20.0
Molding fees	1,201	24.9	—	—	—	—
Others[1]	153	3.2	530	9.1	571	7.0
Total	**4,820**	**100.0**	**5,830**	**100.0**	**8,118**	**100.0**

Note:

1. Others mainly include depreciation of machinery and equipment used for research and development purposes.

Finance costs, net

Our finance costs, net, mainly consisted of interest income and interest expenses. The following table summarizes our finance costs, net, during the Track Record Period:

	For the year ended December 31,		
	2019	**2020**	**2021**
	(RMB'000)	*(RMB'000)*	*(RMB'000)*
Finance income			
Interest income	12	18	54
Finance costs			
Interest expenses on borrowings	(189)	(427)	(652)
Interest expenses on bills arrangement	(233)	(208)	(69)
Interest elements of lease liabilities	(13)	(36)	—
Interest elements of provision for reclamation and mine closure	—	(107)	(113)
Finance costs, net	**(423)**	**(760)**	**(780)**

Income tax expense

Our income tax expense during the Track Record Period consisted of current income tax and deferred income tax of our Group. The following table summarizes our income tax expense during the Track Record Period:

	For the year ended December 31,		
	2019	**2020**	**2021**
	(RMB'000)	*(RMB'000)*	*(RMB'000)*
Current income tax			
— PRC corporate income tax	5,798	9,913	6,630
Deferred income tax			
— Reversal of temporary differences	1,376	673	1,133
— Impact of change in tax rate	—	—	(249)
Income tax expense	**7,174**	**10,586**	**7,514**
Effective tax rate (%)	**22.6**	**21.9**	**12.4**

Under the relevant rules and regulations of the Cayman Islands, we are not subject to any income tax in the Cayman Islands. No Hong Kong profits tax has been provided for Track Record Period since there was no tax assessable profit generated from Hong Kong. Taxation on profits outside Hong Kong has been calculated on the estimated assessable profit for the year at the rates of taxation prevailing in the regions/countries in which our Group operates. PRC Corporate Income Tax has been provided for at the rate of 25% for the Track Record Period on the estimated assessable profit for the year. According to the Enterprise Income Tax Law of the PRC, starting from January 1, 2008, a withholding tax of 10% will be levied on the immediate holding companies outside the PRC when their PRC subsidiaries declare dividend out of profit earned after January 1, 2008. We recorded an effective tax rate at 22.6% in 2019 and 21.9% in 2020. It was decreased to 12.4% in 2021. Decrease in effective tax rate was due to the fact that the major operating subsidiaries of the Group, namely Yixiang New Energy and Yixiang Graphite, became eligible for the tax concession granted by the PRC government as a high-tech enterprise since 2020 and 2021 respectively, such that their corporate income tax rate changed from 25% to 15%.

YEAR-ON-YEAR COMPARISON OF RESULTS OF OPERATIONS

Year ended December 31, 2019 compared to Year ended December 31, 2020

Revenue

Revenue generated from the sale of flake graphite concentrate

Our revenue generated from the sale of flake graphite concentrate increased by approximately RMB28.3 million, or approximately 49.3%, from approximately RMB57.4 million for the year ended December 31, 2019 to approximately RMB85.7 million for the year ended December 31, 2020. Such increase was mainly attributable to a sharp increase in the sales of our 195 flake graphite concentrate, mainly caused by the engagement of customers and the discounts given to long-term customers during the COVID-19 outbreak in order to maintain positive relationships with customers.

Revenue generated from the sale of spherical graphite and by-products

Our revenue generated from the sales of spherical graphite and by-products increased by approximately RMB9.8 million or 14.8%, from approximately RMB66.4 million for the year ended December 31, 2019 to approximately RMB76.2 million for the year ended December 31, 2020, primarily due to the increase of sales of our SG-10 spherical graphite model, generating an increase in revenue of approximately RMB16.8 million, as a result of our Company's decision to reduce the selling price of such products in order to (i) maintain a positive relationship with our long-term customers, especially if they were experiencing difficulties during the COVID-19 outbreak; (ii) attract a larger customer base; and (iii) capture our market share for the year.

Revenue generated from the sales of unprocessed marble

As we only began the extraction of unprocessed marble in the year ended December 31, 2019 after obtaining the mining rights to our Beishan Mine, the sale of our unprocessed marble generated a revenue of approximately RMB6.9 million for the year ended December 31, 2020, accounting for approximately 4.1% of our total revenue for the same year. We did not sell unprocessed marble in 2019 because most of the unprocessed marble that was extracted in the year ended December 31, 2019 was utilized to build some basic infrastructure to support our operations (such as roads, pavements and the reinforcement of the tailings pond).

Cost of Sales

Our cost of sales increased by approximately RMB21.2 million, or approximately 33.0%, from approximately RMB64.3 million for the year ended December 31, 2019 to approximately RMB85.5 million for the year ended December 31, 2020. Such increase was due to (i) the increase in raw materials and consumables consumed of approximately RMB15.7 million, which was in line with our substantial increase in revenue during the year; (ii) the increase in extraction costs by approximately RMB6.0 million as the total volume of the materials moved, including unprocessed graphite, unprocessed marble and waste material, extracted from our Beishan Mine increased in 2020; and (iii) there was also a decrease in direct labor cost by approximately 17.8% as we reduced the number of staff that were deemed redundant to the production processes, and we replaced some of our staff members with lower-skilled workers at a reduced salary cost.

Extraction Costs

Our extraction costs slightly increased from approximately RMB10.8 million in 2019 to RMB11.4 million in 2020. Such increase was mainly caused by: (a) an increase in depreciation of approximately RMB1.8 million as a result of the full year depreciation impact on mining equipment many of which were acquired in the second quarter of 2019 and the addition of certain mining equipment in 2020, and (b) increase in the amortization of mining rights by approximately RMB1.0 million. The aforesaid increase was offset by (a) decrease of salaries of approximately RMB0.3 million as a result of reduction of number of mining staff which are considered redundant; (b) decrease of machineries expenses of approximately RMB0.5 million as a result of less tools and parts supplement to the mining equipment in 2020; (c) decrease of mining project management and administrative expenses of approximately RMB1.1 million in 2020 which primarily consisted of expenses for pre-production phase of our Beishan Mine, including preparation of the mine condition and evaluation plans, safety inspection and emergency plans required prior to the extraction of our Beishan Mine and one premium insurance for dump trucks for the first year of mining operation, which were incurred on non-recurring basis in 2019.

Unit Costs

Flake graphite concentrate

For the year ended December 31, 2019, our average unit costs ranged from approximately RMB1,500 to RMB1,700 per tonne. For the year ended December 31, 2020, our average unit cost decreased to a range of approximately RMB1,100 to approximately RMB1,400 per tonne mainly contributed by (i) the growth in sales; and (ii) the benefits of economies of scale as our utilization rate of our beneficiation plant increased by the year.

Spherical graphite

Our average unit costs ranged from approximately RMB9,100 to approximately RMB9,600 per tonne for the year ended December 31, 2019. The average unit cost decreased to the range from approximately RMB7,300 to approximately RMB9,100 per tonne for the year ended December 31, 2020 due to the better synergies of a vertical integration such as better control of our raw materials and more effective cost structure with our Beishan Mine in 2020. With respective to the average unit costs for micro graphite powder and high-purity graphite powder, we recorded the average unit costs in a decreasing trend for the two years ended December 31, 2019 and 2020, primarily attributable to overall decrease in costs of unprocessed graphite extracted from our Beishan Mine as compared to the costs of unprocessed graphite procured from our third party suppliers after obtaining the mining rights to our Beishan Mine.

Gross profit and gross profit margin

Our gross profit from the sale of flake graphite concentrate increased from approximately RMB28.4 million for the year ended December 31, 2019 to approximately RMB45.5 million for the year ended December 31, 2020 due to (i) the sharp increase in sales of our flake graphite concentrate; and (ii) the benefits of economies of scale as our utilization rate of our beneficiation plant increased in the year. Accordingly, our gross profit margin from the sale of flake graphite concentrate increased from approximately 49.5% for the year ended December 31, 2019 to approximately 53.1% for the year ended December 31, 2020.

Our gross profit from the sale of spherical graphite and its by-products increased from approximately RMB31.1 million for the year ended December 31, 2019 to approximately RMB35.0 million for the year ended December 31, 2020, mainly because of the increase in sales volume as a result of the lowered average selling price of our products sold, which was partially due to the decrease in unit cost of unprocessed graphite procured since the commencement of our vertical integration. Our gross profit margin decreased slightly from 46.8% to approximately 45.9% for the year ended December 31, 2020, which was primarily due to the decision to lower our average selling price of our products to maintain our market share and relationship with customers, and our spherical graphite processing plant's temporary suspension in June 2020 and the suspension of its purification station in November and December 2020.

As we only began the extraction of unprocessed marble in 2019 after obtaining the mining rights to our Beishan Mine, the gross profit from the sale of unprocessed marble amounted to approximately RMB2.8 million for the year ended December 31, 2020, representing a gross profit margin of approximately 40.1%.

Other income and other gains, net

Our other income and other gains, net decreased from approximately RMB0.7 million for the year ended December 31, 2019 to approximately RMB0.3 million for the year ended December 31, 2020, which was primarily attributable to the disposal of five of our motor trucks, resulting in a loss of approximately RMB0.3 million. This was offset by another technology subsidy granted from the Heilongjiang Provincial Government to Yixiang New Energy for developing small-size spherical graphite with a high tap density.

Selling and distribution expenses

Our selling and distribution expenses decreased by approximately RMB4.9 million or 34.3% for the year ended December 31, 2019 to approximately RMB9.4 million for the year ended December 31, 2020. This was mainly due to an overhaul of cost control measures being implemented, following the COVID-19 outbreak, including in particular: (i) the decrease in rental expenses from approximately RMB2.0 million to nil as we did not renew the lease of Beijing office space in order to save costs; (ii) the decrease in marketing fees from approximately RMB3.7 million to approximately RMB4,000, as we did not sponsor seminars in order to save costs; and (iii) the decrease in sales agency fees by approximately RMB0.9 million, as we discontinued our engagement with the customer relationship service providers in the year ended December 31, 2019, having considered they had not been proven most effective given our Group has been gradually building our own sales team, and has established a stable rapport with customers. We also incurred transportation fees of approximately RMB8.0 million, as we had entered into a fixed-term services transportation agreement for the delivery of our products with a third-party transportation services company during the year.

General and administrative expenses

Our general and administrative expenses increased by approximately RMB9.8 million, or by approximately 108.9%, from approximately RMB9.0 million for the year ended December 31, 2019 to approximately RMB18.8 million for the year ended December 31, 2020, mainly due to (i) the increase in employee salaries and benefits from approximately RMB3.5 million to approximately RMB5.5 million as there had been salary increases for management level staff for their contribution to the [REDACTED] application and there had been an increase in the number of staff members hired; (ii) the [REDACTED] incurred of approximately RMB8.2 million; and (iii) the increase in professional fees from approximately RMB1.3 million to approximately RMB2.1 million, of which approximately RMB1.0 million was used for mine exploration and environmental monitoring (as required by the Independent Technical Consultant), approximately RMB0.2 million was used on real estate mapping for Yixiang New Energy (which was necessary to obtain the buildings license), approximately RMB0.4 million was used for the construction completion inspection, mapping, and environmental inspection in relation to our beneficiation facility, and approximately RMB0.4 million was used for fire safety inspections.

Research and development expenses

Our research and development expenses increased by approximately RMB1.0 million or approximately 20.8% from approximately RMB4.8 million for the year ended December 31, 2019 to approximately RMB5.8 million for the year ended December 31, 2020 mainly due to an increased use of raw materials for testing purposes.

Finance costs, net

Our finance costs, net, increased from approximately RMB0.4 million for the year ended December 31, 2019 to approximately RMB0.8 million for the year ended December 31, 2020, primarily due to an increase in total borrowings of approximately RMB2.3 million.

Income tax expense

Yixiang New Energy was subject to a tax rate of 15% for the years ended December 31, 2020 as it was eligible to a tax concession as a high-tech enterprise in such corresponding periods. The effective tax rate remained stable at approximately 22.6% and 21.9% for the two years ended December 31, 2019 and 2020, respectively.

Year ended December 31, 2020 compared to Year ended December 31, 2021

Revenue

Revenue generated from the sale of flake graphite concentrate

Our revenue generated from the sale of flake graphite concentrate increased by approximately RMB12.0 million, or approximately 14.0%, from approximately RMB85.7 million for the year ended December 31, 2020 to approximately RMB97.7 million for the year ended December 31, 2021. Such increase was mainly attributable to the overall increase in the average selling price of flake graphite concentrate which was as a result of increase of market demand. The decrease in revenue of type 196 and other types was offset by the significant increase in our sales volume of type 194 from approximately 11,100 tonnes for the year ended December 31, 2020 to approximately 18,100 tonnes for the year ended December 31, 2021. The substantial increase in demand for type 194 from customers contributed to an increase in revenue of type 194 from approximately RMB28.3 million for the year ended December 31, 2020 to approximately RMB47.3 million for the year ended December 31, 2021. We also recorded an increase in revenue from sales of our type 195, mainly caused by an increase of sales volume from approximately 13,800 tonnes in 2020 to 15,800 tonnes in 2021 as a result of increase in market demand for our type 195 products.

Revenue generated from the sale of spherical graphite and by-products

Our revenue generated from the sales of spherical graphite and by-products increased by approximately RMB22.3 million or approximately 29.3%, from approximately RMB76.2 million for the year ended December 31, 2020 to approximately RMB98.5 million for the year ended December 31, 2021, primarily due to the significant increase in the sales volume of other models from approximately 400 tonnes for the year ended December 31, 2020 to approximately 3,000 tonnes for the year ended December 31, 2021. The increase was mainly attributable to the substantial increase in sales of the purchase orders in respect of SG-9 spherical graphite from one of our top five customers in 2019 and 2021.

Revenue generated from the sales of unprocessed marble

For the year ended December 31, 2021, our revenue generated from the sales of unprocessed marble amounted to approximately RMB2.2 million, as compared to approximately RMB6.9 million for the year ended December 31, 2020. Such decrease was primarily due to a decrease in sales price of unprocessed marble to accelerate such sales to customers in order to make available more working space for storage of other extracted materials on our site, and our customers' demand on unprocessed marble decreased due to the slowdown in the property building and construction industry in the PRC in second half of 2021.

Cost of Sales

Our cost of sales increased by approximately RMB19.8 million, or approximately 23.2%, from approximately RMB85.5 million for the year ended December 31, 2020 to approximately RMB105.3 million for the year ended December 31, 2021. Such increase was mainly due to (i) our engagement of third party service providers in the amount of approximately RMB6.5 million to perform purification work on spherical graphite from January to May 2021 until business suspension had ceased; (ii) the incurrence of outsourcing charges of approximately RMB3.1 million as a result of our crowdsourcing in 2021; and (iii) the increase of raw materials and consumables of approximately RMB9.0 million in line with our growth of revenue.

Extraction Costs

Our extraction costs slightly decreased from approximately RMB11.4 million in 2020 to RMB11.0 million in 2021. Such decrease was mainly caused by: (a) decrease of depreciation of approximately RMB1.9 million as a result of our disposal of certain mining equipment in late 2020 and relocation of certain machineries to tailing storage facilities while the functions of such were replaced by the leased machineries (i.e. Sany 550 Model excavator); and (b) decrease of amortization of mining rights by approximately RMB0.7 million. The aforesaid decrease was offset by: (a) increase of salaries of approximately RMB0.3 million as a result of overall increase of salary for our mining staff and our hiring of more skillful staff for our mining activities in 2021; (b) increase of machineries expenses of approximately RMB0.5 million as a result of our increasing lease of mining equipment for our extracting activities; and (c) increase of raw materials of approximately RMB0.8 million as a result of more materials used in the construction work of the path connecting our Beishan Mine to the main road. The increase in costs of blasting services by approximately RMB0.2 million and fuel costs by RMB0.1 million in 2021 as compared to 2020 was caused by the increased charges by blasting service provider and rising of market fuel costs.

Unit Costs

Flake graphite concentrate

The average unit costs remained relatively stable in the range of approximately RMB1,200 to approximately RMB1,500 per tonne for the year ended December 31, 2021, respectively, as compared to the range of approximately RMB1,100 to RMB1,400 per tonne for the year ended December 31, 2020.

Spherical graphite

The average unit costs for SG-10 increased from approximately RMB9,100 per tonne for the year ended December 31, 2020 to approximately RMB9,700 per tonne for the year ended December 31, 2021 due to the incurrence of subcontractor fees of approximately RMB6.5 million paid to graphite processing service provider for purification processing service from January to May 2021. The average unit costs for other models remained relatively stable in the range of approximately RMB7,100 to approximately RMB7,300 per tonne for the years ended December 31, 2020 and 2021. With respective to the average unit costs for micro graphite powder and high-purity graphite powder, we recorded the average unit costs in a decreasing trend for the two years ended December 31, 2020 and 2021, primarily attributable to overall decrease in costs of unprocessed graphite extracted from our Beishan Mine as compared to the costs of unprocessed graphite procured from our third party suppliers after obtaining the mining rights to our Beishan Mine.

Gross profit and gross profit margin

We recorded our gross profit from the sales of flake graphite concentrate of approximately RMB52.0 million and gross profit margin at approximately 53.2% for the year ended December 31, 2021, which is relatively stable as compared to 53.1% for the year ended December 31, 2020.

Our gross profit margin from the sales of spherical graphite decreased from approximately 45.9% for the year ended December 31, 2020 to approximately 41.8% in the corresponding period in 2021, which was primarily attributable to the increase in our cost of sales resulted from the incurrence of subcontractor fees paid to third party service providers of approximately RMB6.5 million for purification processing service in 2021.

Our gross profit margin for the sale of unprocessed marble decreased from approximately 40.1% for the year ended December 31, 2020 to approximately -4.4% in the corresponding period in 2021, due to the lowering of sales price of unprocessed marble to accelerate such sales to customers in order to make available more working space for placing of other extracted materials on our site, and our customers' demand on unprocessed marble decreased due to the slowdown in the property building and construction industry in the PRC in the second half of 2021.

Other income and other gains, net

Our other income and other gains, net increased from approximately RMB0.3 million for the year ended December 31, 2020 to approximately RMB8.0 million for the year ended December 31, 2021, which was primarily attributed to the (i) one-off government tax grant of approximately RMB5.0 million to our Group's effort in achieving a target level of taxation contribution for the past years; and (ii) government grant for Group's effort in research and development of approximately RMB2.5 million.

Selling and distribution expenses

We recorded our selling and distribution expenses at approximately RMB9.4 million for the year ended December 31, 2020 as compared to approximately RMB10.1 million for the year ended December 31, 2021, representing an increase of approximately RMB0.7 million or 7.4%. Such increase was mainly attributable to incurrence of outsourcing costs of approximately RMB1.2 million as a result of crowdsourcing of workforce for administrative and sales support in line with our business growth for the year ended December 31, 2021.

General and administrative expenses

Our general and administrative expenses increased by approximately RMB0.9 million, or by approximately 4.8%, from approximately RMB18.8 million for the year ended December 31, 2020 to approximately RMB19.7 million for the year ended December 31, 2021, mainly due to the increase of staff cost, other miscellaneous expenses and office and maintenance expenses in line with our business growth.

Research and development expenses

Our research and development expenses increased by approximately RMB2.3 million from approximately RMB5.8 million for the year ended December 31, 2020 to approximately RMB8.1 million for the year ended December 31, 2021, due to our continuous efforts to strengthen our research and development activities to improve our beneficiation and processing methods.

Finance costs, net

Our finance costs, net, remained stable at approximately RMB0.8 million for the year ended December 31, 2021.

Income tax expense

Yixiang New Energy was subject to a tax rate of 15% for the years ended December 31, 2021 and Yixiang Graphite was subject to a tax rate of 15% for the year ended December 31, 2021, as they were eligible to a tax concession as a high-tech enterprise in such corresponding periods. As a result, the effective tax rate decreased from approximately 21.9% in 2020 to 12.4% in 2021.

LIQUIDITY AND CAPITAL RESOURCES

We require a substantial amount of capital to fund our working capital requirements and business expansion. Our operation and growth have been primarily been financed by cash generated from our operations.

Cash flow

As at December 31, 2019, 2020 and 2021, we had cash and cash equivalents of approximately RMB1.9 million, RMB10.0 million and RMB33.9 million, respectively. The following table sets out our cash flow for the years indicated:

	For the year ended December 31,		
	2019	**2020**	**2021**
	(RMB'000)	*(RMB'000)*	*(RMB'000)*
Net cash generated from operating activities	11,244	24,544	75,698
Net cash used in investing activities	(27,646)	(20,717)	(29,122)
Net cash generated from/(used in) financing activities	13,129	4,319	(22,649)
Net (decrease)/increase in cash and cash equivalents	(3,273)	8,146	23,927
Cash and cash equivalents at the beginning of the year	5,134	1,861	10,007
Cash and cash equivalents at end of the year	**1,861**	**10,007**	**33,934**

Cash flow generated from operating activities

We derive our cash inflow from operating activities principally from the receipt of payments from the sales of our flake graphite concentrate and spherical graphite. Our cash outflow from operating activities is principally for the purchases of raw materials, and parts and components for the beneficiation of flake graphite concentrate and processing of spherical graphite.

For the year ended December 31, 2021, we had net cash generated from operating activities of approximately RMB75.7 million, which was primarily contributed by an operating profit before working capital changes of approximately RMB76.0 million, with cash inflow primarily from (i) the decrease of trade and bills receivables of approximately RMB10.8 million, as a result of our efforts on recovering outstanding payments from customers; and (ii) the decrease in inventories of approximately RMB7.1 million, offset by cash outflow primarily from a decrease in contract liabilities of approximately RMB4.4 million, and a decrease in trade payables of approximately RMB2.4 million. The increase of our net cash generated from operating activities from approximately RMB24.5 million in 2020 to RMB75.7 million in 2021 was primarily due to: (i) the increase in our profit before tax mainly attributable to the increase in our graphite product sales; (ii) our effort to recover account receivables from our customers, of which approximately RMB159.3 million, or approximately 99.0% of our trade and bills receivables as at December 31, 2020 were settled in 2021 and approximately RMB49.8 million of our sales (which accounted for approximately 25.1% of our total sales) for the year ended December 31, 2021 were settled in the same year.

For the year ended December 31, 2020, we had net cash generated from operating activities of approximately RMB24.5 million, which was primarily contributed by an operating profit before working capital changes of approximately RMB59.6 million, with cash inflow from (i) a decrease in inventories of approximately RMB9.4 million; (ii) an increase in contract liabilities of approximately RMB9.3 million; (iii) an increase in trade payables of approximately RMB4.8 million, offset by cash outflow primarily from an increase in trade and bills receivables of approximately RMB47.6 million.

For the year ended December 31, 2019, we had net cash generated from operating activities of approximately RMB11.2 million, which was primarily contributed by an operating profit before working capital changes of approximately RMB38.7 million, offset primarily by cash outflow from (i) a decrease in accruals and other payables of approximately RMB7.4 million; (ii) an increase in inventories of approximately RMB5.7 million; and (iii) a decrease in trade payables of approximately RMB3.8 million.

Cash flow used in investing activities

Our cash outflow for investing activities primarily consisted of payments for the purchase of property, plant and equipment and the purchase of mining rights. Our cash inflow for investing activities primarily consisted of proceeds from the disposal of property plant and equipment.

For the year ended December 31, 2021, our net cash used in investing activities amounted to approximately RMB29.1 million, which was primarily contributed by the purchase of property, plant and equipment of approximately RMB26.5 million.

For the year ended December 31, 2020, our net cash used in investing activities amounted to approximately RMB20.7 million, which was primarily contributed by (i) purchase of property, plant and equipment of approximately RMB13.9 million; and (ii) addition of mining rights of approximately RMB8.3 million, which was offset primarily by proceeds from disposal of property, plant and equipment of approximately RMB1.4 million.

For the year ended December 31, 2019, our net cash used in investing activities amounted to approximately RMB27.6 million, which was primarily contributed by (i) purchase of property, plant and equipment of approximately RMB19.8 million; and (ii) addition of mining rights of approximately RMB8.3 million, which was offset primarily by proceeds from disposal of property, plant and equipment of approximately RMB0.5 million.

Cash flow generated from/used in financing activities

Our cash inflow/outflow from financing activities primarily consisted of proceeds from bank and other borrowings and advances from related parties.

For the year ended December 31, 2021, our net cash used in financing activities amounted to approximately RMB22.6 million, which was primarily contributed by (i) repayments of bank and other borrowings of approximately RMB11.5 million; (ii) repayments to related parties of approximately RMB6.0 million; and (iii) payments of acquisition of non-controlling interests pursuant to Reorganization of approximately RMB4.9 million, which was offset by the receipt of proceeds from bank borrowings of approximately RMB3.0 million.

For the year ended December 31, 2020, our net cash generated from financing activities amounted to approximately RMB4.3 million, which was primarily contributed by (i) proceeds from bank and other borrowings of approximately RMB18.5 million; and (ii) advances from related parties of approximately RMB9.7 million, which was offset primarily by (i) repayments of bank and other borrowings of RMB16.2 million; and (ii) repayments to related parties of approximately RMB9.6 million.

For the year ended December 31, 2019, we had net cash generated from financing activities of approximately RMB13.1 million, which was primarily contributed by (i) proceeds from bank and other borrowings of approximately RMB12.5 million; and (ii) advances from related parties of approximately RMB31.4 million, which was offset primarily by repayments to related parties of approximately RMB28.8 million.

Current assets and liabilities

The following table sets out details of our current assets and liabilities as at the dates indicated:

	As at December 31,			As at April 30,
	2019	**2020**	**2021**	**2022**
	(RMB'000)	*(RMB'000)*	*(RMB'000)*	*(RMB'000)* *(Unaudited)*
Current assets				
Inventories	35,423	25,992	18,874	26,287
Trade and bills receivables	113,632	160,863	148,645	99,713
Deposits, prepayments and other receivables	180	4,566	7,533	12,094
Cash and cash equivalents	1,861	10,007	33,934	72,122
	151,096	201,428	208,986	210,216
Current liabilities				
Trade payables	16,160	20,965	18,608	23,958
Accruals and other payables	12,595	19,754	18,498	14,800
Amounts due to related parties and non-controlling interests	77,696	82,749	73,127	73,127
Borrowings	16,156	18,500	10,000	10,000
Contract liabilities	443	9,758	5,310	5,282
Lease liabilities	680	1,169	1,143	1,111
Current tax liabilities	4,204	2,671	744	1,075
	127,934	155,566	127,430	129,353
Net current assets	**23,162**	**45,862**	**81,556**	**80,863**

As at December 31, 2019, 2020 and 2021, we had net current assets of approximately RMB23.2 million, RMB45.9 million and RMB81.6 million, respectively. As at April 30, 2022, we had net current assets of approximately RMB80.9 million.

Our net current assets increased from approximately RMB23.2 million as at December 31, 2019 to approximately RMB45.9 million as at December 31, 2020, primarily due to (i) the increase in trade and bills receivables of RMB47.2 million as a result of our increase in revenue; (ii) increase in cash and cash equivalents of approximately RMB8.1 million; and (iii) increase in deposits, prepayments and other receivables of approximately RMB4.4 million mainly as a result of the deferred [REDACTED] and prepayment of raw materials. This was offset by primarily (i) an increase in trade payables of approximately RMB4.8 million; (ii) an increase of accruals and other payables of approximately RMB7.2 million; (iii) an increase of amounts due to related parties and non-controlling interests of approximately RMB5.1 million; and (iv) a decrease in inventories of approximately RMB9.4 million.

Our net current assets further increased to approximately RMB81.6 million as at December 31, 2021, primarily due to (i) an increase in cash and cash equivalents of approximately RMB23.9 million; (ii) a decrease in amounts due to related parties and non-controlling interests of approximately RMB9.6 million; (iii) a decrease in trade payables of approximately RMB2.4 million; and (iv) a decrease in accruals and other payables of approximately RMB1.3 million, mitigated by (i) a decrease in trade and bills receivables of approximately RMB12.3 million; and (ii) a decrease in inventories of approximately RMB7.1 million.

Our Directors confirm that the Group's revenue and costs and expenses were settled by the Group directly with the relevant customers and suppliers during the Track Record Period, and no costs and expenses relating to the Group's operations were borne by related parties or other third parties without being recharged to the Group during the Track Record Period.

Working capital sufficiency

During the Track Record Period, we relied on cash inflows generated from operating activities (being approximately RMB75.7 million for the year ended December 31, 2021). Our Directors confirm that, taking into consideration the financial resources presently available to us, which are primarily our internal resources (i.e. cash inflows to be generated from our operating activities, which were approximately RMB75.7 million as at December 31, 2021, and our cash and bank balances on hand, which were approximately RMB33.9 million as at December 31, 2021), our available banking facilities and the estimated [REDACTED] from the [REDACTED] of approximately [REDACTED] million, assuming an [REDACTED] of HK$[REDACTED] per Share being the mid-point of the estimated [REDACTED] range, we have sufficient working capital for at least 125% of our present requirements for at least the next 12 months commencing from the date of this document. Our Directors are not aware of any other factors that would have a material impact on our Group's liquidity. Details of the funds necessary to meet our existing operations and to fund our future plans are set out in "Future Plans and [REDACTED]" in this document.

CERTAIN ITEMS OF CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

Inventories

Our inventories primarily consist of raw materials, which principally included unprocessed graphite, work in progress, finished goods (i.e. flake graphite concentrate, spherical graphite and its by-products and unprocessed marble), and parts and components. The following table sets out the breakdown of our inventories as at the dates indicated:

	As at December 31,		
	2019	**2020**	**2021**
	(RMB'000)	*(RMB'000)*	*(RMB'000)*
Raw materials	1,065	4,030	6,820
Work in progress	7,982	8,044	5,739
Finished goods	27,012	14,224	6,315
	36,059	26,298	18,874
Less: provision for inventories	(636)	(306)	(—)
Total	**35,423**	**25,992**	**18,874**

Our inventories decreased by approximately 26.6% from approximately RMB35.4 million as at December 31, 2019 to approximately RMB26.0 million as at December 31, 2020. Such decrease was primarily due to a decrease in our finished goods that resulted from a surge in our overall sales and we also experienced a temporary suspension of our spherical graphite processing plant's purification station from November 2020 to May 2021 for purposes of repairs and enhancements, which slowed down our production when approaching the end of the year. Our inventories decreased to approximately RMB18.9 million as at December 31, 2021 mainly due to the decrease of finished goods resulted from our overall sales in the year of 2021.

The following table sets forth our average inventory turnover days for the years indicated:

	For the year ended December 31,		
	2019	**2020**	**2021**
Average inventory turnover days[1]	184.8	131.4	77.7

Note:

1. Average inventory turnover days are equal to the average of the opening and closing balances of inventory of the relevant year divided by cost of sales for the relevant year and multiplied by 365 days for 2019, 366 days for 2020, and 365 days for the year ended December 31, 2021.

For the years ended December 31, 2019, 2020 and 2021, our inventory turnover days were 184.8 days, 131.4 days and 77.7 days, respectively. The average inventory turnover days decreased for the year ended December 31, 2020 due to the increase in sales volume during the year. The average inventory turnover days decreased to 77.7 days for the year ended December 31, 2021 due to the low level of inventory that resulted from the aforesaid surge in our overall sales in 2020, which continued in 2021.

We closely monitor our inventory level. Physical inventory count on inventory would be conducted at least once a year. Our Group makes provision for slow moving inventories based on assessing the needs and reasonableness of provision for slowing moving inventories at each year end. The identification of slow-moving inventories requires the use of judgments and key assumptions which take into consideration of historical sales pattern, aging and expectation of future sales orders. Where the expectation is different from the original estimate, such difference will impact the carrying value of inventories and provision for inventories.

As at the Latest Practicable Date, approximately RMB16.1 million, or approximately 85.2% of inventories as at December 31, 2021 were sold or consumed.

Trade and bills receivables

As at December 31, 2019, 2020 and 2021, our total trade and bills receivables amounted to approximately RMB113.6 million, RMB160.9 million and RMB148.6 million, of which our bills receivables amounted to approximately RMB61.8 million, RMB85.5 million and RMB98.2 million, respectively. The increase in such amounts during the Track Record Period was largely in line with our revenue growth. As at December 31, 2021, we recorded a decrease in our trade receivables, as a result of our payment collection efforts of outstanding fees from our customers during 2021. The table below sets out a breakdown of our trade and bills receivables for the dates indicated:

	As at December 31,		
	2019	**2020**	**2021**
	(RMB'000)	*(RMB'000)*	*(RMB'000)*
Trade receivables	55,114	79,065	55,539
Bills receivables	61,825	85,454	98,225
Trade and bills receivables	116,939	164,519	153,764
Less: loss allowance[(1)]	(3,307)	(3,656)	(5,119)
Total	**113,632**	**160,863**	**148,645**

Note:

1. Amounts charged to the allowance account are generally written off when there is no expectation of recovery.

The following table sets forth our average turnover days of our trade and bills receivables for the years indicated:

	For the year ended December 31,		
	2019	**2020**	**2021**
Average turnover days of our trade and bills receivables[1]	331.6	297.7	284.8

(1) Average trade and bills receivables turnover days are equal to the average of the opening and closing balances of trade and bills receivables of the relevant year divided by sales for the relevant year and multiplied by 365 days for 2019, 366 days for 2020, and 365 days for 2021.

During the Track Record Period, most of our customers was given a credit period of up to 90 days. In terms of payment, most of our trade receivables were settled by bills issued by financial institutions or telegraphic transfer. Such bills normally have a maturity period between 180 and 365 days after the receiving date. According to Frost & Sullivan, this payment practice has been an on-going industry practice.

For the years ended December 31, 2019, 2020 and 2021 our turnover days of our trade and bills receivables were 331.6 days, 297.7 days and 284.8 days, respectively. The general decrease in such turnover days during the Track Record Period was mainly due to our effort to recover trade receivables from our customers during the Track Record Period. We allowed longer credit periods to our customers during the Track Record Period, primarily because (i) a large part of our receivables due from customers comprised of bills receivables to be settled by banks and financial institutions by their respective maturity dates ranging from within 90 days to 365 days and the risk of non-recovery is considered to be relatively low; and (ii) we adopt strategies in market penetration by allowing longer credit periods to customers. To the best knowledge of our Directors, these customers have stable business operations and are financially sound. Additionally, our Directors believed that in order to grow our business and build up our customer base in the Track Record Period, a relatively longer credit periods was acceptable and was therefore allowed. As a result, we experienced an increase in our revenue during the Track Record Period, with our revenue amounted to approximately RMB123.7 million, RMB168.7 million and RMB198.4 million for the three years ended December 31, 2019, 2020 and 2021.

The following table sets out the aging analysis of our trade receivables based on due date:

	As at December 31,			Subsequent settlement up to the Latest Practicable Date	Percentage of subsequent settlement up to the Latest Practicable Date
	2019	**2020**	**2021**		
	(RMB'000)	*(RMB'000)*	*(RMB'000)*	*(RMB'000)*	*(%)*
Current	32,918	36,850	15,695	14,371	91.6
Past due:					
Within 90 days	16,117	28,988	26,291	23,945	91.1
91–180 days	1,805	5,203	6,363	3,337	52.4
181–270 days	1,433	2,677	2,012	982	48.8
271–365 days	35	864	375	47	12.5
Over 1 year	2,806	4,483	4,803	859	17.9
	55,114	**79,065**	**55,539**	**43,541**	**78.4**

As at 31 December 2019, 2020 and 2021, the ageing analysis of our bills receivables, based on maturity date, is as follows:

	As at December 31,			Subsequent settlement up to the Latest Practicable Date	Percentage of subsequent settlement up to the Latest Practicable Date
	2019	**2020**	**2021**		
	(RMB'000)	*(RMB'000)*	*(RMB'000)*	*(RMB'000)*	*(%)*
Within 90 days	16,713	30,029	52,695	52,695	100.0
91–180 days	31,897	43,149	40,830	30,558	74.8
181–270 days	10,915	9,050	2,601	—	—
271–365 days	2,300	3,226	2,100	—	—
	61,825	**85,454**	**98,225**	**83,253**	**84.8**

As at the Latest Practicable Date, approximately RMB43.5 million, or approximately 78.4% of our trade receivables as at December 31, 2021 were settled, and approximately RMB83.3 million, or approximately 84.8% of our bills receivables as at December 31, 2021 were settled. Bills receivables with maturity date within 90 days as at December 31, 2021 were fully settled up to the Latest Practicable Date, and bills receivables with other maturity dates beyond 90 days would normally be settled by the financial institutions on the respective maturity dates applicable to such bills receivables.

According to the F&S Report, as a matter of industry practice, the credit period in the sale of graphite industry is generally 90 days and the turnover days of trade receivables and bills receivables generally range from 180 to 365 days. It is customary for graphite companies to extend credit terms to their customers in the PRC and our Directors are of the view that our credit terms to our customers and turnover days of trade and bills receivables are in line with the industry practice. For trade receivables which are past due for 90 days, we generally decide to extend their credit periods. In making such decision, we take into account (i) whether such customer has a proven record of credibility for settling outstanding amounts due to us, and (ii) whether such customer maintains stable business operations and is financially sound, to the best knowledge of our Directors. Such decision is reached after careful consideration and assessment by our Directors in accordance with our internal credit control procedures. If we decide to extend their credit period, we issue payment reminders to these customers. For trade receivables which are past due for over 365 days from the date of receiving our formal invoice, we normally proceed with debt recovery actions unless there is commercial justification not to do so.

Most of our trade receivables were settled by bills issued by financial institutions or telegraphic transfers. Approximately 59.7%, 46.6% and 28.3% of the trade receivables of our Group were within the relevant credit periods set by our Group or the maturity date for the years ended December 31, 2019, 2020 and 2021, respectively. The trade receivables of our Group that exceeded their relevant credit periods during the Track Record Period accounted for approximately 40.3%, 53.4% and 71.7% of the total trade receivables of our Group for the years ended December 31, 2019, 2020 and 2021, respectively.

All of the bills receivables of our Group were settled on or before their respective maturity dates during the Track Record Period. To the best knowledge of our Directors, there were no outstanding bills receivables that exceeded their relevant maturity dates during the Track Record Period as these bills receivables were settled by banks and financial institutions. In view of the bills issued by banks and financial institutions are payable by such banks and financial institutions instead of our customers, the recoverability of such balances are enhanced and our Directors consider the risk of non-recovery to be relatively low.

Our Directors confirm that there was no material disagreement or dispute between our Group and our customers, which could adversely affect our financial condition, in respect of the trade receivables and bills receivables that remained to be collected as at the Latest Practicable Date.

We endorsed certain bills receivables of approximately RMB7.5 million, RMB15.5 million and RMB16.4 million to our creditors as at December 31, 2019, 2020 and 2021, respectively. For the year ended December 31, 2021, the proceeds of the endorsement transactions are included in trade payables of approximately RMB9.7 million and accruals and other payables of approximately RMB6.7 million until the related bills receivables are collected or we settle any losses suffered by the creditors. In the event of default, we are obliged to pay the creditors the amount in default. We are therefore exposed to the risks of credit losses and late payment in respect of its endorsed bills receivables. In order to minimize the credit risk that may potentially arise due to the prolonged receivables turnover days and the reliance on bank bills, our Group has implemented internal control measures to monitor the outstanding receivables of our customers. For details, please see "Business — Our suppliers — Payment terms and credit control".

For provision/impairments, we made general provisions recognizing expected credit losses, we also made specific provisions/impairment on long-aged accounts receivables which we had launched legal proceedings to recover such amounts, whilst we are entitled to monetary recovery according to the relevant court decisions, such customers simply were unable to pay. Hence, provisions were made accordingly. As provided in the Accountant's Report, impairment was made for trade and bills receivables which amounted to approximately RMB3.3 million, RMB3.7 million and RMB5.1 million as at December 31, 2019, 2020 and 2021, respectively. To the best knowledge of our Directors, this would not have material impact on the financial conditions of the Group, as our Group had not experienced any major disruption of business due to material delay or default of payment by our customers. Save for such impairment allowances, our Directors consider that we had no other impairment allowance made during the Track Record Period and sufficient provision/impairments have been made. There are no recoverability issue for trade receivables because: (i) approximately 78.4% of the trade receivable as at December 31, 2021 were settled and approximately 84.8% of our bills receivables as at December 31, 2021 were settled, as at the Latest Practicable Date; and (ii) to the best knowledge of our Directors, they are not aware of any financial difficulties on customers with outstanding trade and bills receivables to settle our invoices other than those customers with provision being made against them. Trade receivables have been grouped based on shared credit risk characteristics and the days past due to measure the expected credit losses. The customers of spherical graphite and its by-products, and unprocessed marble are mainly customers with long business relationship with us, and we do not experience any historical loss from this group of customers for all the historical outstanding balances, including those aged more than one year. As such, taking into account of the forward-looking factors, the historical loss rate for those trade receivables balance is immaterial and no loss allowance has been provided on the trade receivables from them as at December 31, 2019 and 2021. For details, please see note 3 of the Accountant's Report in Appendix I to this document.

Our Group also has internal control policies in place to monitor the settlement of trade receivables. The responsibility of collecting accounts receivables lies mainly with our sales staff. In general, our customers should begin to make payment upon receiving an invoice from us. If we receive a bank's acceptance bill, records shall be kept by the finance team and confirmed by the sales supervisor. Sales staff shall check, at the end of each month, that the records between the sales department and the finance department are consistent, then report to the general manager. The sales staff must also check and confirm with our customers once to twice a year to ensure that the balances of the accounts of both parties are accurate. Our finance team closely review the trade and bills receivables balances and any overdue balances on an ongoing basis, and assessments are made by our general manager on the collectability of overdue balances. Any impairment allowance for trade receivables and bills receivables are subject to our general manager's approval. Furthermore, we have adopted prudent credit control procedures, including (i) having our finance team meet regularly with our general manager and sales team for status updates of our trade and bills receivables, such as, aging conditions and collectability analysis; and (ii) having our senior management and sales team decide on credit periods to be extended to such customers or to proceed with debt recovery action depending on a number of factors, such as credit history and our historical business relationship with such customer. For customers who had not made purchases from us for a substantial period of time, or have repeatedly failed to pay, we would instruct our lawyers to issue letters of demand to such. In the event that certain amounts could not be received from long outstanding trade and bills receivables, we would commence litigation against such customers for liquidated damages as recovery. These internal credit control procedures have been adopted to minimize our credit risk. Our Directors believe the industry-wide long trade receivable turnover days do not have material adverse effect on our liquidity and cash management.

Deposits, prepayments and other receivables

Our deposits, prepayments and other receivables mainly comprised (i) prepayments for property, plant and equipment; (ii) deferred professional service fees in relation to the [REDACTED]; and (iii) prepayments for raw materials. The following table sets out a summary of our deposits, prepayments and other receivables as at the dates indicated:

	As at December 31,		
	2019	**2020**	**2021**
	(RMB'000)	*(RMB'000)*	*(RMB'000)*
Deferred [REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Prepayments for raw materials	—	1,596	1,848
Prepayments for property, plant and equipment	3,039	244	162
Prepaid [REDACTED]	—	138	905
Deposits	20	57	20
Other prepayments	100	—	876
Other receivables	60	37	81
	[REDACTED]	[REDACTED]	[REDACTED]
Less: non-current portion	(3,039)	(244)	(1,038)
	[REDACTED]	[REDACTED]	[REDACTED]

Our deposits, prepayments and other receivables increased from approximately RMB[REDACTED] as at December 31, 2019 to approximately RMB[REDACTED] as at December 31, 2020, primarily due to (i) an increase in deferred [REDACTED] of approximately RMB2.7 million; and (ii) prepayments for raw materials of approximately RMB1.6 million, mitigated by the decrease in prepayments for property, plant and equipment of approximately RMB2.8 million. Such amounts were further increased to approximately RMB8.6 million as at December 31, 2021, primarily due to (i) an increase in prepaid [REDACTED] by approximately RMB0.8 million; (ii) an increase in prepayments for raw materials by approximately RMB0.3 million; (iii) an increase of deferred [REDACTED] by approximately RMB1.9 million; and (iv) an increase of other prepayments of approximately RMB0.9 million mainly as a result of our prepayment for the leased lands in 2021.

Trade payables

Our trade payables mainly comprised the amounts payable to: (i) our suppliers for the supply of electricity and the purchase of materials and supplies; and (ii) our third party service providers. The credit period taken for trade purchase is generally between 0 to 180 days. The following table sets out a summary of our trade payables as at the dates indicated:

	As at December 31,		
	2019	**2020**	**2021**
	(RMB'000)	*(RMB'000)*	*(RMB'000)*
Trade payables	**16,160**	**20,965**	**18,608**

The portion of trade payables that represented endorsement of bills receivables were approximately RMB5.0 million, RMB8.5 million and RMB9.7 million as at December 31, 2019, 2020 and 2021, respectively.

Our trade payables increased from approximately RMB16.2 million as at December 31, 2019 to approximately RMB21.0 million as at December 31, 2020, primarily due to the increased purchase of raw materials in anticipation of an increasing demand in the following year. Such trade payables then decreased to approximately RMB18.6 million as at December 31, 2021, primarily due to that we accelerated payment settlement with some of our suppliers in order to maintain good business relationships with them, considering the level of cash available for our business operations.

The following table sets forth our average turnover days of our trade payables for the years indicated:

	Year ended December 31,		
	2019	**2020**	**2021**
Average turnover days of our trade payables(1)	101.0	91.4	67.0

(1) Average trade payables turnover days are equal to the average of the opening and closing balances of trade payables of the relevant year divided by total purchase transactions for the relevant year and multiplied by 365 days for 2019, 366 days for 2020, and 365 days for 2021.

For the years ended December 31, 2019, 2020 and 2021, our average turnover days of our trade payables were approximately 101.0 days, 91.4 days and 67.0 days, respectively. The average turnover days of our trade payables during the Track Record Period decreased, mainly because of our acceleration on our payment to some of our suppliers to maintain positive business relationship with them while considering the increased level of our cash available for our business operation in the corresponding periods.

As at the Latest Practicable Date, approximately RMB14.6 million, or approximately 78.2% of our trade payables as at December 31, 2021 were settled.

The following table sets out the aging analysis of our trade payables as at the dates indicated:

	As at December 31,		
	2019	**2020**	**2021**
	(RMB'000)	*(RMB'000)*	*(RMB'000)*
Up to 90 days	11,242	17,054	13,596
91–180 days	4,234	1,600	3,385
181–365 days	684	2,066	1,589
Over 1 year	—	245	38
	16,160	**20,965**	**18,608**

Accruals and other payables

The following table sets out a summary of our accruals and other payables as at the dates indicated.

	As at December 31,		
	2019	**2020**	**2021**
	(RMB'000)	*(RMB'000)*	*(RMB'000)*
Accrued construction cost	3,845	7,752	8,151
Accrued [REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Other tax payables	2,385	3,309	2,846
Accrued staff expense	2,701	2,423	1,633
Rental expense	2,000	—	—
Others	1,664	1,646	2,664
	[REDACTED]	**[REDACTED]**	**[REDACTED]**

Our accrued staff expense remained stable at approximately RMB2.7 million as at December 31, 2019 and approximately RMB2.4 million as at December 31, 2020. Such expense decreased to approximately RMB1.6 million as at December 31, 2021, primarily due to a portion of labor costs was allocated to other payables as result of crowdsourcing arrangements in 2021.

Our accrued construction cost increased from approximately RMB3.8 million as at December 31, 2019 to approximately RMB7.8 million as at December 31, 2020, primarily due to increased purchase of machinery and the construction of the administrative and research and development department building. Such cost increased to approximately RMB8.2 million as at December 31, 2021, primarily due to the purchase of equipment and installation for the upgrade of our beneficiation plant completed in 2021.

Our other tax payables increased from approximately RMB2.4 million as at December 31, 2019 to approximately RMB3.3 million as at December 31, 2020, which was in line with our revenue growth. We recorded other tax payables of approximately RMB2.8 million as December 31, 2021.

Our other payables, which mainly comprised accrued transportation fees, mining project management fee and maintenance fee, remained relatively stable at approximately RMB1.7 million as at both December 31, 2019 and 2020. We recorded our other payables at approximately RMB2.7 million as at December 31, 2021.

INDEBTEDNESS

Bank loans and other borrowings

Our bank loans and other borrowings primarily consisted of bank loans and bills arrangement. Certain motor vehicles with carrying amounts of approximately RMB4.2 million as at December 31, 2019 were pledged as security for our Group's other borrowings. As at December 31, 2019, other borrowings of approximately RMB2.2 million were secured by the guarantee provided by a shareholder of our Group and Independent Third Parties. As at December 31, 2020 and 2021 and April 30, 2022, bank loans of RMB10.0 million were secured by the guarantee provided by an Independent Third Party. The remaining bank loans of RMB4.0 million as at December 31, 2020 were unsecured.

The following table sets out a summary of our bank loans and other borrowings:

	As at December 31,			As at April 30,
	2019	**2020**	**2021**	**2022**
	(RMB'000)	*(RMB'000)*	*(RMB'000)*	*(RMB'000)* *(Unaudited)*
Bank borrowings				
— Bank loans	—	14,000	10,000	10,000
— Bills arrangement	14,000	4,500	—	—
Other borrowings	2,156	—	—	—
	16,156	**18,500**	**10,000**	**10,000**

Our Group's bank borrowings are repayable based on the scheduled repayment dates as follows:

	As at December 31,			As at April 30,
	2019	2020	2021	2022
	(RMB'000)	*(RMB'000)*	*(RMB'000)*	*(RMB'000)*
				(Unaudited)
Within 1 year	**16,156**	**18,500**	**10,000**	**10,000**

During the Track Record Period, we primarily used our bank loans and other borrowings for our general working capital, purchase of parts and components and raw materials.

The following sets forth the weighted effective interest rates as at the indicated dates:

	As at December 31,			As at April 30,
	2019	2020	2021	2022
Bank borrowings				
— Bank loans	4.87%	4.79%	4.85%	4.89%
— Bills arrangement	3.67%	2.59%	N/A	N/A
Other borrowings	8.00%	N/A	N/A	N/A

Bank advances for discounted bills with recourse have been accounted for as collateralised bank advances. The discounted bank's acceptance bills and the related proceeds of the same amount are included in our Group's trade and bills receivables and borrowings respectively at the end of the year end dates.

Banking facilities

As at December 31, 2019, 2020 and 2021 and April 30, 2022, our Group had available and utilized banking facilities of approximately RMB2.2 million, RMB14.0 million, RMB10.0 million and RMB10.0 million, respectively. As at the Latest Practicable Date, the Group obtained a banking facility, pursuant to which a facility of RMB20.0 million was granted to the Group for one year from the date of the facility letter, with terms and conditions being negotiated and agreed with the bank from time to time upon drawdown. As at the Latest Practicable Date, no drawdown was made by the Group. Our Directors confirm that our Group did not experience any difficulty in obtaining credit facilities or withdrawal of facilities during the Track Record Period. To the best knowledge and belief of our Directors, our Group will not have difficulties in obtaining new banking facilities or renewing banking facilities after the [REDACTED].

Amounts due to Shareholders, other related parties and non-controlling interests

The following table sets out a summary of our amounts due to Shareholders and other related parties during the Track Record Period:

	As at December 31,			As at April 30,
	2019	**2020**	**2021**	**2022**
	(RMB'000)	*(RMB'000)*	*(RMB'000)*	*(RMB'000)* *(Unaudited)*
Amounts due to Shareholders				
— Mr. Zhao Liang	42,645	42,957	73,127	73,127
— Mr. Zhao Changshan	26,092	26,092	—	—
— Mr. Zhao Ming	8,759	8,759	—	—
Amounts due to other related parties				
— Mr. Zhao Changhai	200	—	—	—
Amount due to non-controlling interests	—	4,941	—	—
	77,696	**82,749**	**73,127**	**73,127**

During the Track Record Period, we had amounts due to Shareholders, other related parties and non-controlling interests which consisted of funds to support operations (such as the purchase of raw materials and capital expenditure for machinery). As at the Latest Practicable Date, there were no amounts due to Mr. Zhao Changshan and Mr. Zhao Ming by the Group. The amounts due from Yixiang Graphite to Mr. Zhao Changshan and Mr. Zhao Ming, in the aggregate sum of approximately RMB34.9 million as at May 27, 2021, were assigned by Mr. Zhao Changshan and Mr. Zhao Ming to Mr. Zhao pursuant to a tripartite loan assignment agreement on the same date. As a result, the Group owed an amount of approximately RMB73.1 million to Mr. Zhao, which shall be settled by way of capitalization by allotting and issuing 1 Share credited as fully paid to be allotted and issued to Sandy Mining, an entity designated by Mr. Zhao, as full and final settlement of the consideration payable to Mr. Zhao. The Loan Consideration Capitalization will take place immediately prior to the [REDACTED]. For further information, please see "History, Reorganization and Corporate Structure — Reorganization — Loan Consideration Capitalization".

Loan Consideration Capitalization

As a result of certain loan assignment agreements, Mr. Zhao assigned the WFOE loans due from Yixiang Graphite and Yixiang New Energy to Mr. Zhao in the aggregate amount of approximately RMB73.1 million.

Pursuant to a deed for loan novation dated May 27, 2021, the Company is substituted in place of the WFOE in the aforementioned loan assignment agreements and shall pay the consideration in the aggregate amount of approximately RMB73.1 million for such assignments of the loans due from Yixiang Graphite and Yixiang New Energy to Mr. Zhao, respectively. Mr. Zhao, Sandy Mining Limited, the WFOE, Yixiang Graphite, Yixiang New Energy and the Company entered into a loan consideration capitalization deed dated May 27, 2021, whereby the Company agrees to settle such consideration by way of capitalization by allotting and issuing 1 Share credited as fully paid to be allotted and issued to Sandy Mining, an entity designated by Mr. Zhao, as full and final settlement of the consideration payable to Mr. Zhao.

For the amount due to non-controlling interests, Ms. Song Meixin, it was settled in April 2021.

Lease liabilities

The table sets out below details of our lease liabilities as at the dates indicated.

	As at December 31,			As at April 30,
	2019	**2020**	**2021**	**2022**
	(RMB'000)	*(RMB'000)*	*(RMB'000)*	*(RMB'000)* *(Unaudited)*
Current	680	1,169	1,143	1,111
Non-current	164	976	383	144
	844	2,145	1,526	1,255

During the Track Record Period, we entered into leases primarily for offices, a warehouse and equipment. Our lease liabilities increased from approximately RMB0.8 million as at December 31, 2019 to approximately RMB2.1 million as at December 31, 2020. Our lease liabilities decreased from approximately RMB2.1 million as at December 31, 2020 to approximately RMB1.5 million as at December 31, 2021, mainly as a result of our settlement of lease liabilities. As at April 30, 2022, we recorded our lease liabilities at approximately RMB1.3 million.

Contingent liabilities

As at December 31, 2019, 2020 and 2021 and April 30, 2022, being the latest practicable date for the determining our indebtedness, our Directors confirm that we had no contingent liabilities. We are currently not a party to any litigation that is likely to have a material adverse effect on our business, results of operations or financial condition.

Disclaimer

Save as disclosed above, to the best knowledge of our Directors, our Group did not have any outstanding loan capital issued or agreed to be issued, bank overdrafts, loans or other similar indebtedness, liabilities under acceptances or acceptable credits, debentures, mortgages, charges, finance leases, hire purchases commitments, guarantees or other material contingent liabilities as at April 30, 2022, being the latest practicable date for determining our indebtedness.

Material indebtedness change

Save as disclosed above, our Directors confirm that, up to the Latest Practicable Date, there was no material change in indebtedness and contingent liabilities of our Group since April 30, 2022, being the latest practicable date for determining our indebtedness. Our Directors further confirm that our Group does not have any plans to raise any material debt financing shortly after the [REDACTED].

RELATED PARTY TRANSACTIONS AND BALANCE WITH NON-CONTROLLING INTERESTS

For details, please see note 25 of the Accountant's Report in Appendix I to this document.

[REDACTED]

Our Directors are of the view that the financial results of our Group for the year ending December 31, 2022 are expected to be adversely affected by, among others, our [REDACTED], the nature of which is non-recurring. Our total [REDACTED], primarily consisting of fees paid or payable to professional parties and [REDACTED] fees and commission, are estimated to be approximately [REDACTED] million (or approximately HK$[REDACTED] million, based on the mid-point of the indicative [REDACTED] range of [REDACTED] per [REDACTED] and [REDACTED] [REDACTED] and assuming the [REDACTED] is not exercised). The [REDACTED] we incurred in the Track Record Period and expect to incur would consist of (i) [REDACTED] related expenses of approximately [REDACTED] million (including but not limited to commission and fees); and (ii) [REDACTED] related expenses of approximately [REDACTED] million (including fees and expenses of legal advisers and reporting accountants of approximately [REDACTED] million and other fees and expenses of approximately [REDACTED] million). Among the estimated aggregate amount of our [REDACTED], (i) approximately [REDACTED] million is directly attributable to the issue of the [REDACTED] and will be accounted for as a deduction from equity upon the [REDACTED]; and (ii) approximately [REDACTED] million has been and is expected to be recognized as expenses in our consolidated statements of comprehensive income, of which approximately [REDACTED] million and [REDACTED] million has been recognized for the two years ended December 31, 2020 and 2021, respectively, and the remaining of approximately [REDACTED] million is expected to be recognized by our Group for the year ending December 31, 2022. The total estimated amount of [REDACTED] (including [REDACTED] commission) accounted for approximately [REDACTED] of our gross [REDACTED] from the [REDACTED] assuming the [REDACTED] is fixed at HK$[REDACTED] per Share (being the mid-point of the indicative [REDACTED] range stated in this document and assuming that the [REDACTED] is not exercised).

FINANCIAL RATIOS

	Year ended December 31,		
	2019	2020	2021
Net profit margin(1)	19.8%	22.4%	26.9%
Return on equity(2)(9)	22.2%	24.8%	26.4%
Return on assets(3)(9)	10.1%	11.9%	16.0%
Interest coverage(4) *(times)*	73.9	63.3	73.9

	As at December 31,		
	2019	2020	2021
Current ratio(5) *(times)*	1.2	1.3	1.6
Quick ratio(6) *(times)*	0.9	1.1	1.5
Debt-to-equity ratio(7)	83.0%	61.4%	24.4%
Gearing ratio(8)	84.7%	68.1%	41.2%

Notes:

1. Net profit margin equals to profit for the year divided by revenue for the year, multiplied by 100%.

2. Return on equity equals to profit attributable to owner for the year divided by total equity attributable to equity shareholders as at the year end date, multiplied by 100%.

3. Return on assets equals to profit attributable to owner for the year divided by total assets as at the year end date, multiplied by 100%.

4. Interest coverage ratio equals to profit for the year netting off the interest and income tax expense for the year divided by interest for the year. Interest is defined to include all finance costs of our Group for the year.

5. Current ratio equals to total current assets divided by total current liabilities as at the year end date.

6. Quick ratio equals to total current assets less inventories divided by total current liabilities as at the year end date.

7. Debt-to-equity ratio equals to net debt divided by total equity as at the year end date. Net debt is defined to include all, borrowings and debts of our Group as at year end date, which included amounts due to related parties and non-controlling interests, net of cash and cash equivalents.

8. Gearing ratio equals to total debt divided by total equity as at the year end date. Total debt of our Group refers to all borrowings and debts of our Group as at year end date, which included amounts due to related parties and non-controlling interests.

Net profit margin

Our net profit increased approximately from 19.8% for the year ended December 31, 2019 to approximately 22.4% for the year ended December 31, 2020, then to approximately 26.9% for the year ended December 31, 2021, mainly due to the reasons and analysis of our results of operations in "— Results of operations" in this section.

Return on equity

Our return on equity increased from approximately 22.2% for the year ended December 31, 2019 to approximately 24.8% for the year ended December 31, 2020 as our net profit increased by approximately 54.2% due to the increase in revenue and our total equity only increased by approximately 34.2% during the same year. Our return on equity increased to approximately 26.4% for the year ended December 31, 2021 as our net profit increased by approximately 40.9% due to the increase in revenue and our total equity only increased by approximately 35.9% during the same year.

Return on assets

Our return on assets increased from approximately 10.1% for the year ended December 31, 2019 to approximately 11.9% for the year ended December 31, 2020 as our net profit increased by approximately 54.2% and our total assets increased by approximately 26.8% during the same year, primarily due to the increase in our revenue. Our return on assets increased to approximately 16.0% for the year ended December 31, 2021, as our net profit increased by approximately 40.9% and our total asset increased by approximately 8.1% during the same year, primarily due to the increase in our revenue.

Interest coverage

Our interest coverage decreased from approximately 73.9 times for the year ended December 31, 2019, to approximately 63.3 times for the year ended December 31, 2020, due to the increase of interest expenses in line with increase of our borrowing in 2020. Our interest coverage increased to 73.9 times as at December 31, 2021 due to the increase of profit before tax and interest in 2021 in line with growth of revenue.

Current ratio

Our current ratio remained relatively stable at approximately 1.2 times and 1.3 times as at December 31, 2019 and 2020, respectively. As at December 31, 2021, our current ratio increased to 1.6 times due to the decrease of our current liabilities as a result of the decrease of our borrowings and amounts due to related parties and non-controlling interests.

Quick ratio

Our quick ratio remained relatively stable at approximately 0.9 times and 1.1 times as at December 31, 2019 and 2020, respectively. As at December 31, 2021, we recorded our quick ratio at 1.5 times due to the decrease of our current liabilities as a result of the decrease of our borrowings and amounts due to related parties and non-controlling interests.

Debt-to-equity ratio

Our debt-to-equity ratio decreased from approximately 83.0% as at December 31, 2019 to approximately 61.4% as at December 31, 2020, due to the increase in our total equity as a result of (i) the profit during the Track Record Period; and (ii) the increase in share premium and decrease in other reserves as a result of the Reorganization. As at December 31, 2021, our debt-to-equity ratio decreased to 24.4% primarily due to (i) increase in our total equity; (ii) decrease in the amounts due to related parties and non-controlling interests and decrease in borrowings; and (iii) increase in cash and cash equivalents as at December 31, 2021.

Gearing ratio

Our gearing ratio decreased from approximately 84.7% as at December 31, 2019 to approximately 68.1% as at December 31, 2020, primarily due to the increase in our total equity as a result of (i) the profit during the Track Record Period; and (ii) the increase in share premium and decrease in other reserves as a result of the Reorganization. As at December 31, 2021, our gearing ratio decreased to 41.2% primarily due to the increase in our total equity and decrease in the amounts due to related parties and non-controlling interests and decrease in borrowings as at December 31, 2021.

QUALITATIVE AND QUANTITATIVE DISCLOSURE ABOUT MARKET RISK

We are exposed to various types of market risks in the ordinary course of business, including interest rate risk, credit risk and liquidity risk. We have not used any derivatives or other instruments for hedging purposes.

Interest Rate Risk

Our interest rate risk arises from bank and other borrowings. Most our Group's assets and liabilities are either interest-free or subject to interest at fixed rates which expose our Group to fair value interest rate risk. As at December 31, 2019, 2020 and 2021, our Group's borrowings at several rates were denominated in RMB. We believe that our Group's exposure to fair value interest rate risk as at December 31, 2019, 2020 and 2021 is not material.

Cash flow interest rate risk is the risk that changes in market interest rates will impact cash flows arising from variable rate financial instruments. Our Group is not exposed to significant cash flow interest rate risk as most of our Group's assets and liabilities is either interest-free or subject to interest at fixed rates.

Credit Risk

As at December 31, 2019, 2020 and 2021, our maximum exposure to credit risk which will cause a financial loss due to failure to discharge an obligation by the counterparties is arising from the carrying amounts of the respective recognized financial assets as stated in the consolidated statements of financial position. In order to minimize the credit risk, we generally provide a credit period of not more than three months to our customers. Our sales team is responsible for management of our customer database, which contains information such as credit period determination of other monitoring procedures to ensure that follow-up action is taken to recover overdue debts. In addition, we review the recoverable amount of each individual trade debt at the beginning and end of the reporting period to ensure that adequate impairment losses are made for irrecoverable amounts. In this regard, our Directors consider that our Group's credit risk is significantly reduced.

Liquidity Risk

In the management of the liquidity risk, we monitor and maintain a level of cash and cash equivalents deemed adequate by management to finance our operations and mitigate the effects of fluctuations in cash flows. The management monitors the utilization of bank borrowings and ensures compliance with loan covenants. As at the Latest Practicable Date, the Group obtained a bank facility, pursuant to which a facility of RMB20.0 million was granted to the Group for one year from the date of the facility letter, with terms and conditions being negotiated and agreed with the bank from time to time upon drawdown. As at the Latest Practicable Date, no drawdown was made by the Group.

OFF-BALANCE SHEET ARRANGEMENTS

As at the Latest Practicable Date, we did not have any material off-balance sheet arrangements.

CAPITAL COMMITMENTS

The following table sets forth our capital commitments (mostly for the purchase of machinery and equipment) as at the dates indicated:

	As at December 31,			As at April 30,
	2019	**2020**	**2021**	**2022**
	RMB'000	*RMB'000*	*RMB'000*	*RMB'000*
				(Unaudited)
Commitments for the:				
— Acquisition of plant and equipment	—	3,400	—	3,462

DIVIDENDS

We did not declare any dividends during the Track Record Period. After completion of the [REDACTED], the declaration of dividends shall be subject to the discretion of our Directors. Any declaration of final dividend by our Company shall also be subject to the approval of our Shareholders in a Shareholders' meeting. Any declaration and payment as well as the amount of dividend will be subject to our constitutional documents, PRC laws and the Cayman Companies Act. Under applicable PRC laws, our subsidiary in the PRC may only distribute after-tax profits after it has made allocations or allowances for recovery of accumulated losses and allocations of the statutory reserves. Any distributable profits that are not distributed in any given year will be retained and available for distribution in subsequent years. To the extent profits are distributed as dividends, such portion of profits will not be available to be reinvested in our operations.

DISTRIBUTABLE RESERVES

As at December 31, 2021, our Company did not have distributable reserves.

PROPERTY INTERESTS AND PROPERTY VALUATION

Roma Appraisals Limited, an independent property valuer, has valued our selective property interests and is of the opinion that the fair value of such property interests as at April 30, 2022 was approximately RMB40.8 million. The full text of the valuation report and the valuation certificate are set out in Appendix IV to this document.

A reconciliation between the net book value of our selective property interests in our consolidated financial statements as at December 31, 2021 and the market value of our selective property interests as at April 30, 2022 as required under Rule 5.07 of the Listing Rules is set forth below:

	RMB'000
Net book value of property interests as at December 31, 2021	26,445
Movements during the four months ended April 30, 2022	(627)
Net book value of property interests as at April 30, 2022	25,818
Valuation surplus	14,982
Valuation as at April 30, 2022	40,800

UNAUDITED [REDACTED] FINANCIAL INFORMATION

Please refer to Appendix II to this document for the unaudited [REDACTED] adjusted consolidated net tangible assets.

NO MATERIAL ADVERSE CHANGE

Our Directors confirm that there has been no material adverse change in our financial conditions or trading position since December 31, 2021 (being the date on which our latest audited consolidated financial results were prepared in the Accountant's Report as set out in Appendix I to this document) and up to the date of this document.

DISCLOSURE UNDER RULES 13.13 TO 13.19 OF THE LISTING RULES

Our Directors confirm that, as at the Latest Practicable Date, except as otherwise disclosed in this document, there were no circumstances which would give rise to the disclosure requirements under Rules 13.13 to 13.19 of the Listing Rules had the Shares been listed on the Stock Exchange on that date.

CAPITAL EXPENDITURES

As at December 31, 2019, 2020 and 2021, our capital expenditures amounted to approximately RMB32.5 million, RMB31.3 million and RMB30.7 million, which mainly represented construction in progress or purchases in machinery and equipment.

ESTIMATED CAPITAL COSTS AND OPERATING COSTS

Capital costs

The following table summarizes our estimated capital costs, based on actual costs associated with our mining, beneficiation and processing operations as well as a series of indicative prices received from our suppliers, as reviewed by the Independent Technical Consultant:

	2022	**2023**	**2024**	**2025**
	(RMB million)	*(RMB million)*	*(RMB million)*	*(RMB million)*
Mining equipment	0.8			
Current spherical graphite plant expansion	3.1			
New beneficiation plant	39.5	54.7	13.8	
New spherical graphite processing plant			57.8	35.4
Sustaining capital	5.1	5.7	5.9	6.1
Total	**48.5**	**60.4**	**77.5**	**41.5**

Operating costs

We have prepared the following operating cost estimate that has been developed for our Beishan graphite mine, a beneficiation plant and a spherical graphite processing plant by the Company's financial information, with key activities accounted for including mining, flake graphite beneficiation and spherical graphite processing, general and administrative expenses, and government levies and resource tax. The estimated operating costs are based on the following items:

- Historical operation records
- The third-party Luobei County Yunshan Graphite Mining Co., Ltd's graphite ore contract
- Contracts with consumable providers
- VAT of 13% levied for the sale of the products
- City maintenance and construction levy of 1% of the net amount of VAT generated by our operations
- Education levy of 5% of the net amount of VAT generated by our operations
- Resource tax of 12% of sales revenue of graphite ore and 6% sales revenue of marble ore

The following tables set forth the estimated operating cash cost up to the year ending December 31, 2041 as extracted from Appendix III to this document:

Operating Cash Cost	Unit	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Mining	RMB million	8.2	6.0	8.3	10.7	9.8	9.6	9.4	9.4	9.4	9.4	9.3	9.1	8.7	8.7	8.7	8.7	8.7	8.7	6.4	5.9	5.5	5.2	1.9
Less: marble by-product revenue	RMB million	–	–6.9	–2.2	–0.8	–0.4	–0.2	–0.1	–0.1	–0.1	–0.2	–0.5	–0.9	–1.2	–0.8	–0.7	–0.6	–0.5	–0.3	–	–	–	–	–
Net mining cost	RMB million	8.2	–0.9	6.1	9.9	9.4	9.4	9.3	9.3	9.3	9.2	8.8	8.3	7.6	7.9	8.0	8.1	8.2	8.4	6.4	5.9	5.5	5.2	1.9
Flake graphite beneficiation cost	RMB million	53.3	61.2	65.7	59.2	53.1	53.8	53.6	53.1	52.5	52.3	51.3	49.4	48.8	48.5	48.5	48.2	47.3	43.3	46.2	45.9	45.9	48.0	12.6
Spherical graphite processing	RMB million	31.5	36.4	52.9	49.8	52.9	56.6	56.6	56.7	56.8	56.8	57.0	57.3	57.4	57.5	57.5	57.5	57.7	58.4	57.9	57.9	57.9	57.5	52.6
Less: micro graphite powder by-product revenue	RMB million	–7.1	–6.3	–8.0	–10.4	–10.9	–10.9	–10.9	–10.9	–10.9	–10.9	–10.9	–10.9	–10.9	–10.9	–10.9	–10.9	–10.9	–10.9	–10.9	–10.9	–10.9	–10.9	–10.9
Less: high-purity graphite powder revenue	RMB million	–2.1	–0.7	–0.2	–0.9	–0.9	–0.9	–0.9	–0.9	–0.9	–0.9	–0.9	–0.9	–0.9	–0.9	–0.9	–0.9	–0.9	–0.9	–0.9	–0.9	–0.9	–0.9	–0.9
Net spherical graphite processing cost	RMB million	22.3	29.4	44.7	38.6	41.1	44.7	44.8	44.8	44.9	45.0	45.1	45.5	45.6	45.6	45.6	45.7	45.8	46.6	46.0	46.1	46.1	45.7	40.7
Total	RMB million	83.8	89.7	116.5	107.7	103.6	107.9	107.7	107.3	106.7	106.4	105.2	103.1	101.9	102.0	102.1	101.9	101.3	98.2	98.6	97.9	97.5	98.9	55.2

Operating Cash Unit Cost	Unit	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Materials moved	RMB/t materials moved	8.2	3.5	5.2	6.0	6.5	6.8	6.8	6.8	6.8	6.8	6.9	6.9	7.0	7.0	7.1	7.1	7.1	7.1	8.4	9.0	9.6	10.2	10.3
Graphite ore	RMB/t graphite ore	27.3	–4.5	20.3	27.0	18.8	18.8	18.6	18.6	18.5	18.3	17.6	16.5	15.1	15.7	16.1	16.2	16.3	16.7	12.7	11.8	11.1	10.5	10.3
Flake graphite concentrate	RMB/t concentrate	1,994	1,576	1,496	1,342	1,161	1,180	1,179	1,182	1,185	1,185	1,184	1,185	1,174	1,182	1,186	1,189	1,197	1,228	1,164	1,155	1,147	1,129	921
Spherical graphite	RMB/t spherical graphite	14,265	10,406	10,175	10,507	10,212	10,881	10,884	10,905	10,929	10,936	10,962	11,020	11,107	11,036	11,047	11,066	11,112	11,331	11,052	11,033	11,010	10,898	9,466

Operating costs are dependent on the production rates and schedules of the mining, beneficiation and spherical graphite processing activities and their associated feed ore grades, recoveries, yields and the proportion of the fixed and variable costs.

The Beishan Mine is currently at the construction stage, with a substantial amount of overburden to be stripped. From 2023, the mine is targeted to reach its designed annual graphite ore production rate of 0.5 Mt. The operating costs for our mining activities ranged from approximately RMB8.2 million in 2019 to RMB8.3 million in 2021. In 2022, the operating costs for mining activities are expected to reach RMB10.7 million when the total materials moved peaks at 1.78 Mt. With less total materials moved, the operating costs for mining activities will decrease steadily till the end of mine life.

The revenue generated from sales of marble extracted reached the highest level at approximately RMB6.9 million in 2020 and RMB2.2 million 2021 according to the mining schedule, which comprised a larger proportion of unprocessed marble. As our extraction went deeper into our Beishan Mine, the volume of unprocessed marble to be extracted is estimated to decline from 2022.

The net mining operating costs recorded a decrease in 2020 when there was revenue generated from our sales of unprocessed marble, and it increased to RMB9.9 million in 2022 as less unprocessed marble is made available for sales, which is estimated to decrease steadily thereafter in line with the decrease of the operating costs for our mining activities for the aforesaid reasons.

The flake graphite concentrate beneficiation operating costs increased from approximately RMB53.3 million 2019 to RMB65.7 million in 2021 due to increase of production during the period. In 2023, all graphite ores are expected to be sourced from the Beishan Mine, which will bring down the operating cost. The feed ore grades are expected to reach 11.18% TGC in 2023 and gradually decrease to 9.78% TGC in 2040. The amount of flake graphite concentrate output will decrease from 53.82 kt in 2023 to 47.10 kt in 2040, which in turn less flake graphite concentrate will be produced.

The spherical graphite processing costs increased from approximately RMB31.5 million 2019 to RMB52.9 million in 2021 due to increase of production and the inclusion of subcontractor charges in 2021. From 2022 onwards, it is estimated to remain stable at the range between approximately RMB49.8 million to RMB57.5 million till 2040 as the production rate and other production parameters are assumed to be the same.

The revenue generated from sales of micro graphite powder remained stable at the range of approximately RMB6.3 million and RMB8.0 million between 2019 and 2021 due to increasing demand of the graphite products. It is estimated to remain stable at the level between approximately RMB10.4 million to RMB10.9 million from 2022 to 2040, assuming there will be a similar by-product yield in the remaining life of mine.

The revenue generated from sales of high-purity graphite powder decreased from approximately RMB2.1 million in 2019 to RMB0.2 million in 2021 due to the overall improvement of our processing yield, leading to the decrease of by-products made during the production during the Track Record Period and the purification activities be subcontracted to third parties, leading to the decrease of production of high-purity graphite powder in 2021. It is estimated to increase and remain stable at approximately RMB0.9 million from 2022 to 2040 assuming there will be a similar by-product yield in the remaining mine life.

The net spherical graphite processing costs increased in line with the increase of spherical graphite processing costs from 2019 and 2021. It is estimated to continue to be consistent with fluctuation of the spherical graphite processing costs from 2022 onwards.

The operating unit costs for materials extracted from our Beishan Mine decreased from approximately RMB8.2 per tonne in 2019 to RMB5.2 per tonne in 2021 during the ramp-up period. It is estimated that the operating unit costs will range from RMB6.0 per tonne in 2022 to RMB7.1 per tonne in 2036. From 2037, the operating unit cost will increase as the amount of materials moved will decrease significantly while the fixed cost such as labor is expected in the similar order of magnitude.

During the construction period, the operating unit costs for graphite ore extracted decreased from approximately RMB27.3 per tonne in 2019 to RMB20.3 per tonne in 2021 mainly attributable to the allocation of extraction costs to the unprocessed marble sold during the corresponding period. It is estimated to decrease steadily from approximately RMB27.0 per tonne in 2022 to RMB10.3 per tonne in 2041 as the strip ratio decreases.

The operating costs for flake graphite concentrate decreased from approximately RMB1,994 per tonne in 2019 to RMB1,496 per tonne in 2021 due to the inclusion of the graphite ore from Beishan Mine in our production from 2019 and the benefits of economies of scale with the increasing production during the period. From 2023, the flake graphite concentrate unit cost remains in a similar order of the magnitude (RMB1,161 per tonne in 2023 to RMB1,129 per tonne in 2040) as the production rate and other production parameters remain stable.

The operating costs for spherical graphite decreased from approximately RMB14,265 per tonne in 2019 to RMB10,175 per tonne in 2021 due to the inclusion of the graphite ore from Beishan Mine in our production from 2019 and the benefits of economies of scale with the increasing production during the period. From 2023, it is estimated to remains in a similar order of magnitude (RMB10,212 per tonne in 2023 to RMB10,898 per tonne in 2040) when the production rate and other production parameters remains stable.

Estimated operating cash cost by categories

Operating Cash Cost	Unit	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Workforce employment	RMB million	8.2	7.0	8.5	8.6	8.8	8.9	8.9	8.9	8.9	8.9	8.9	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	5.0
Consumables	RMB million	24.3	30.9	40.4	35.3	27.8	28.7	28.7	28.5	28.4	28.3	27.9	27.3	27.1	27.1	27.1	27.0	26.9	25.9	26.3	26.2	26.1	26.6	18.4
Fuel, electricity, water and other services	RMB million	29.1	32.9	45.0	39.2	40.6	43.2	43.0	42.8	42.5	42.4	41.7	40.6	39.9	39.9	39.5	40.0	39.5	37.8	37.4	36.9	36.6	37.3	22.5
On and off-site administration	RMB million	7.6	8.5	10.5	13.3	14.5	14.6	14.6	14.6	14.6	14.6	14.5	14.5	14.4	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	5.9
Environmental protection and monitoring	RMB million	0.3	1.0	1.0	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	0.5
Transportation of workforce	RMB million	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Product marketing and transport subtotal	RMB million	14.3	9.4	10.1	9.9	10.4	11.0	11.0	11.0	10.9	10.9	10.7	10.5	10.4	10.4	10.4	10.3	10.3	9.8	10.1	10.1	10.1	10.3	2.9
Contingency allowances	RMB million	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	RMB million	83.8	89.7	116.5	107.7	103.6	107.9	107.7	107.3	106.7	106.4	105.2	103.1	101.9	102.0	102.1	101.9	101.3	98.2	98.6	97.9	97.5	98.9	55.2

The operating costs for workforce employment recorded a decrease from approximately RMB8.2 million in 2019 to RMB7.0 million in 2020 due to the reduction of the number of staff that were deemed redundant to the production processes and the replacement of some staff members with lower-skilled workers at a reduced salary cost. It was increased back to approximately RMB8.5 million in 2021 and is estimated to remain stable at that level from 2022 to 2040 as the number of staff is expected in a similar level as the production rate remains at a similar level during this period.

The operating costs for consumables experienced an increase from approximately RMB24.3 million in 2019 to RMB40.4 in 2021 due to the increase of production of both flake graphite concentrate and spherical graphite. It is estimated to decrease to approximately RMB35.3 million in 2022 and remained stable at the range of approximately RMB36.0 million to RMB43.0 million till 2040, corresponding to the feed ore grades, recoveries and yields detailed in the production schedules in the independent Technical Report.

The operating costs for fuel, electricity, water and other services increased from approximately RMB29.1 million in 2019 to RMB45.0 million in 2021 due to the increase of production of both flake graphite concentrate and spherical graphite. It is estimated to remain stable between approximately RMB36.0 million and RMB43.0 million from 2022 to 2040 corresponding to the feed ore grades, recoveries and yields detailed in the production schedules in the independent Technical Report.

The operating costs for on and off-site administration increased from approximately RMB7.6 million in 2019 to RMB10.5 million in 2021 due to the increase of professional fee during the period. It is estimated to increase to approximately RMB13.3 million in 2022 and remain stable at approximately RMB14.5 million till 2040 as similar level of on and off-site administration is required during this period.

The operating costs for environmental protection and monitoring increased from approximately RMB0.3 million in 2019 to RMB1.0 million in 2021 due to increase of the environment protection activities on our production plant, tailing storage and our Beishan Mine with increasing production. It is estimated to increase to approximately RMB1.4 million in 2022 and a similar level of budget is allocated to environmental protection and monitoring thereafter.

The operating costs for product marketing and transport decreased from approximately RMB14.3 million in 2019 to RMB10.1 million in 2021 due to decrease of marketing fees and the rental expense of the offices in Beijing in 2019. It is estimated to remain stable between approximately RMB10.0 million and RMB11.0 million from 2022 to 2040.

The operating costs for transportation of workforce and contingency allowances are assumed to be nil.

The overall decrease of the above items in 2041 is expected as a result of entering into the ramp-down period.

In preparing the above operating cost estimate, the following principal assumptions have been adopted:

(a) Our Group will be able to continue its operation in substantially the same manner as our Group has been operating during the Track Record Period, and our Group will be able to continue operating without disruptions adversely affecting such in any way.

(b) There will be no significant changes in our relationship with major customer and suppliers;

(c) Our Group will be able to retain key staff in the management and the main operational departments.

(d) Our Group will not be materially affected by any risk factors set out in "Risk Factors".

(e) There will be no material change in the existing legislation or regulations, political, legal, fiscal or economic conditions in places in which any member of our Group carries on or will carry on our business.

(f) There will be no material change in the bases or rates of taxation in places in which any member of our Group operates or will operate or is incorporated.

(g) There will be no material changes in the funding required for implementing our business strategies as described in "Business — Our Business Strategies".

(h) The [REDACTED] will be completed in accordance with and as described in "Structure and Conditions of the [REDACTED]".

The above tables are estimates only and are subject to change. Our future actual capital costs and operating costs any differ materially from the above forecasted operating costs as a result of numerous factors, including the factors described in "Risk Factors" of this document. In addition to "Risk Factors" of this document, please also refer to "Forward-looking statements" of this document for the risk of placing undue reliance on any forward-looking information.

RECENT DEVELOPMENT AND MATERIAL ADVERSE CHANGE

Please see "Summary — Recent development and material adverse change".