# Betolar

## Initiation of coverage

**3.11.2022 8:55**


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**This report is a summary translation of the report "Vihreämmän betoniteollisuuden mahdollistaja" published on 3.11.2022 at 8:55**

# Enabling a greener concrete industry

We initiate coverage of the materials technology company Betolar with a Reduce recommendation and a EUR 3.00 target price. Betolar has since 2016 developed the Geoprime concept that allows cement to be replaced in concrete production. Its biggest benefit is a clear reduction in CO2 emissions from concrete production. As a whole, we see the valuation of Betolar's share as too high relative to the risks in the short term, and therefore wait for the risk/return-ratio of the share to improve.

### Betolar commercializes a concept that enables a greener future for the concrete industry

In recent years, Betolar has developed the Geoprime concept based on an activator chemical and, in principle, a wide range of industrial side streams, especially for the construction and mining industries. The concept would make it possible to replace cement that causes 7% of global CO2 emissions in concrete production, which, according to Betolar, would at best allow an 80% reduction in concrete production emissions. The company now has 8 commercial contracts from Europe and Asia, but its net sales are still almost non-existent.

### Business model should be scalable

Betolar's business model is based on two income streams, as in the commercial phase the company charges its customers a volume-based chemical fee and a license fee mainly linked to volume (including recipes, technical support and development, commercial support). The margin profiles of the income streams differ significantly as the license sales margin is close to 100%, while the sales margin for chemicals is clearly lower. In the long run, Betolar aims for the scalable license component to deliver a larger share of net sales, which we believe requires the success of the AI project that would enable automation of a rather manual current business.

### Estimating Betolar's business is very difficult and scenarios vary from sky-high to the doldrums

Due to Betolar's early development stage, business predictability is very weak already and potential scenarios vary from sky-high to the doldrums. We include a neutral scenario in our estimates, where commercialization and business scaling are achieved, but Betolar falls clearly short of its very ambitious medium- and long-term growth targets. As part of the valuation, we have also looked at a scenario in line with the company's targets and slower commercialization than we expect. We estimate that Betolar needs more cash in all scenarios, as current growth investments consume some EUR 1 million cash per month. Even in the best scenarios, we expect Betolar's cash flow to turn around at the earliest in 2026 and scalable growth to occur around the turn of the decade.

### Valuation tolerances are very wide, but the overall picture still speaks for caution

With our 2023 net sales estimates Betolar's EV/S ratio is high in absolute terms and clearly higher than for peers at 9x, while the scenarios based on our 2024 and 2026 estimates generate a more positive picture of the expectations loaded into the share. Our DCF model reaches about EUR 4 with the company's current number of shares, but this cannot be fully relied upon until the uncertainty surrounding the model's divisor (i.e. need to increase the number of shares due to additional funding requirements) disperses. We feel the risks are too great to rely on the potential and tightening financial conditions do not support early-stage growth companies like Betolar. Thus, we initiate coverage of Betolar, which is an interesting company, with a cautious view.

## Recommendation

**Reduce**
(prev. - )

**3,00 EUR**
(prev. - EUR)

**Share Price:**
2.86 EUR


## Key indicators

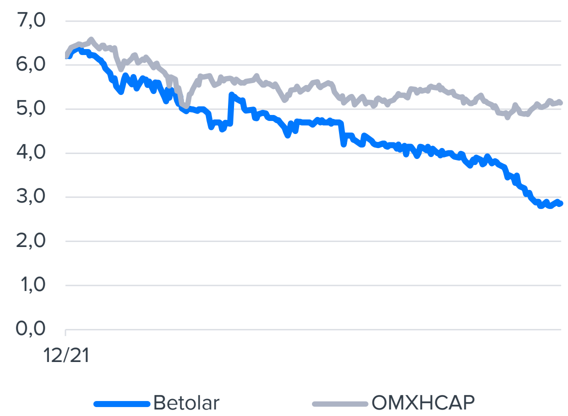
| | 2021 | 2022e | 2023e | 2024e |
|---|---|---|---|---|
| **Revenue** | 0,0 | 0,3 | 5,3 | 27,0 |
| growth-% | 67 % | 2900 % | 1650 % | 414 % |
| **EBIT adj.** | -3,9 | -11,4 | -13,9 | -12,3 |
| EBIT-% adj. | | | -265 % | -45,7 % |
| **Net Income** | -7,3 | -12,0 | -14,1 | -12,7 |
| **EPS (adj.)** | -0,38 | -0,62 | -0,72 | -0,65 |
| | | | | |
| **P/E (adj.)** | neg. | neg. | neg. | neg. |
| **P/B** | 3,2 | 2,1 | 4,5 | neg. |
| **Dividend yield-%** | 0,0 % | 0,0 % | 0,0 % | 0,0 % |
| **EV/EBIT (adj.)** | neg. | neg. | neg. | neg. |
| **EV/EBITDA** | neg. | neg. | neg. | neg. |
| **EV/S** | >100 | >100 | 9,5 | 2,5 |

Source: Inderes

## Guidance

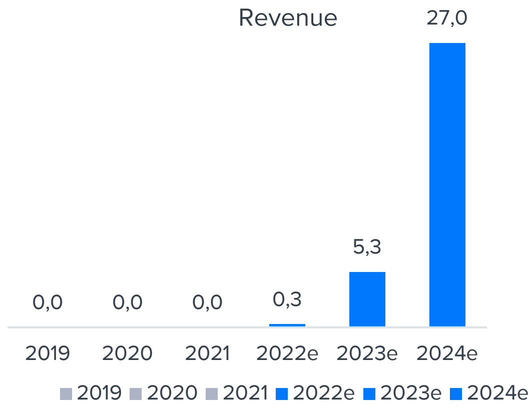
(No guidance)

## Share price



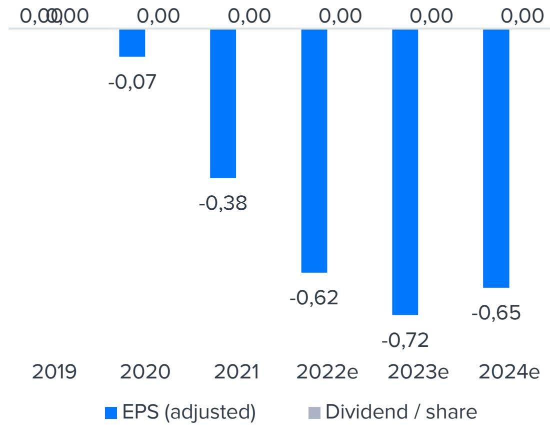

Source: Millistream Market Data AB

## Revenue




Source: Inderes

## EPS and DPS




Source: Inderes

## Value drivers

- Betolar's total accessible market is large
- Green transition will change conservative industry
- Betolar's technology seem to be competitive
- Business model should be scalable

## Risk factors

- Commercialization of the business is still in very early phase
- The company's cash flow is negative, and the profits will scale up within several years
- The company requires likely a cash injection
- More competitive companies or technologies can try to penetrate in the market
- Reaching scalability is likely to require success in AI development

| Valuation | 2022e | 2023e | 2024e |
|---|---|---|---|
| Share price | 2,86 | 2,86 | 2,86 |
| Number of shares, millions | 19,5 | 19,5 | 19,5 |
| Market cap | 56 | 56 | 56 |
| EV | 33 | 50 | 67 |
| P/E (adj.) | neg. | neg. | neg. |
| P/E | neg. | neg. | neg. |
| P/FCF | neg. | neg. | neg. |
| P/B | 2,1 | 4,5 | neg. |
| P/S | >100 | 10,6 | 2,1 |
| EV/Sales | >100 | 9,5 | 2,5 |
| EV/EBITDA | neg. | neg. | neg. |
| EV/EBIT (adj.) | neg. | neg. | neg. |
| Payout ratio (%) | 0,0 % | 0,0 % | 0,0 % |
| Dividend yield-% | 0,0 % | 0,0 % | 0,0 % |

Source: Inderes

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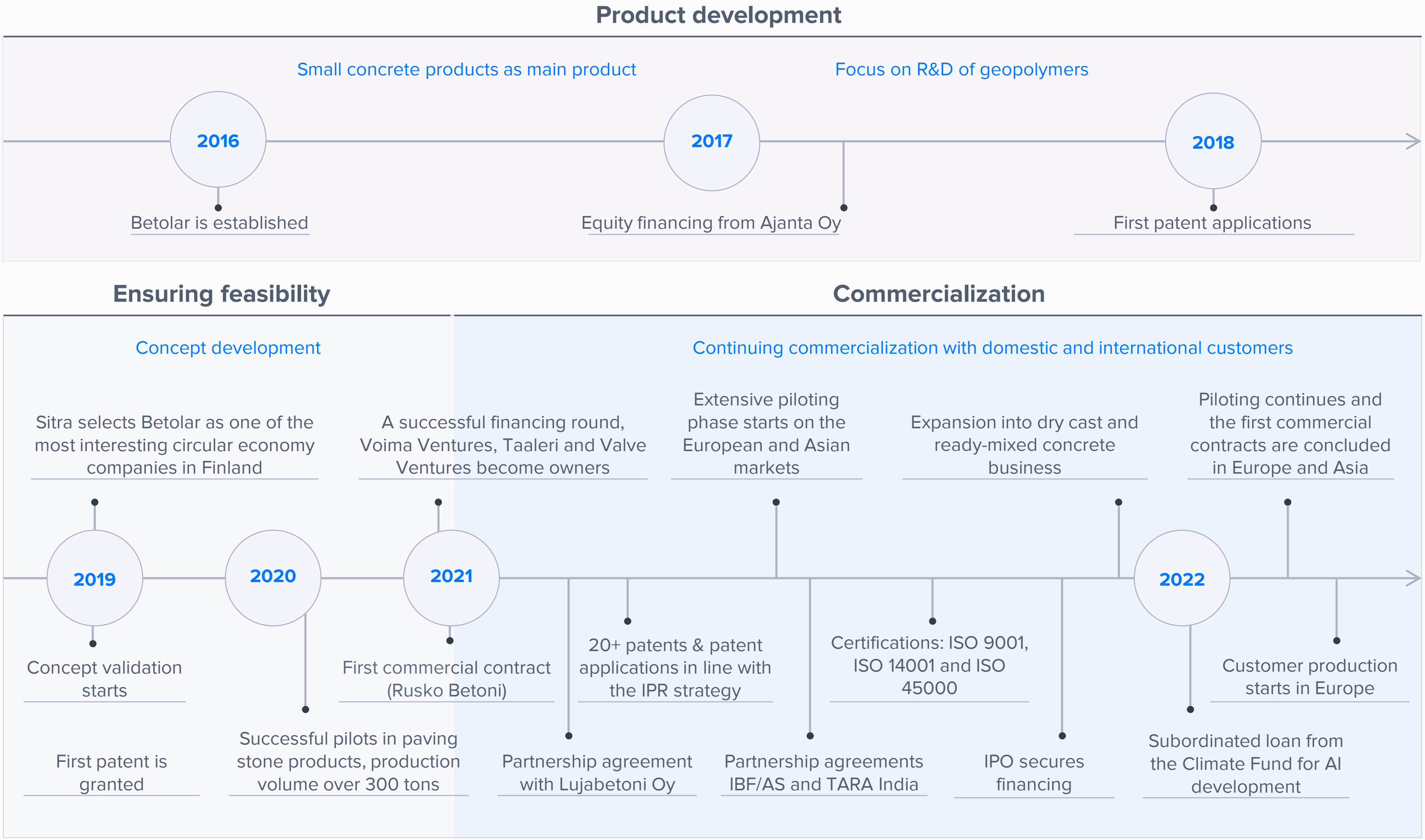
# Betolar's development path




Source: Betolar

# Company description and business model 1/9

## Betolar in brief

Betolar that was listed on the First North list of Nasdaq Helsinki in 2021, is a Finnish early growth materials technology company whose aim is to enable the concrete industry to move to greener concrete and concrete products using Betolar's Geoprime geopolymer solution that is significantly more environmentally friendly than conventional concrete. The emission reduction (CO2) can be up to 80%. The solution consists of industrial side stream (or partially even waste) and an activator and the chemistry of these substances. The solution enables Betolar's customer to replace cement in concrete production which generates the bulk of the high carbon dioxide emissions in concrete production. The Geoprime concept is suitable for manufacturers' existing production capacities so customers do not have to invest in new production lines.

## Betolar is an early-stage technology company

We feel Betolar's business model is that of a technology company whose core business is developing new material technologies and selling and marketing them. So Betolar does not produce cement or concrete itself but offers its customers the opportunity to manufacture these products by selling licenses for the use of the Geoprime concept (incl. technical and commercial support) and the activator needed as a sub-component in Geoprime concrete production. This enables scalable growth with reasonable capital needs in an industry where the capital requirements for manufacturing companies are typically high.

We believe that Betolar is an innovator of a very traditional and partly conservative industry. In order to promote the green transition in the entire industrial field, Betolar supports its customers in selling and marketing the product in the value chain, which we feel is important for the breakthrough of the new concept. Betolar's aim is to create a strong brand around the Geoprime solution that builders and property developers trust regardless of the solution provider.

## Building a customer base is just beginning

The construction of Betolar's customer base is still at an early stage, but the 8 commercial contracts signed by the company have been made locally in the construction industry value chain with customers that manufacture concrete or concrete products. We believe that at the beginning of commercialization, the Geoprime concept is used to make products that have less demanding characteristics, such as paving stones. As development progresses and product quality improves and stabilizes, the focus will at least partially shift toward more demanding products such as structural concrete.

According to our estimates, the company-specific net sales of the core customer group are initially in the EUR 10-200 million range, but country organizations of larger groups can be potential customers. For example, Consolis Parma, who signed a cooperation agreement with Betolar for production of hollow core slab products with the Geoprime concept in 2022, is part of the Consolis Group that globally generates net sales of around one billion. By convincing individual country organizations of these types of groups Betolar could in principle also have access to large customers.

BETOLAR

A materials technology company founded in Kannonkoski in 2016 specializing in the circular economy

Betolar develops an environmentally friendly concrete binder for concrete producers that utilizes industrial side-streams. The emission reduction ($CO_2$) can be up to 80%.

At the end of H1'22 the company employed 49 people and it continuously recruits new employees in line with its growth strategy

The company targets a scalable business model with license-based pricing and by developing a digital tool that automates the optimization of the concrete design mix.

Betolar has 8 commercial contract customers and 36 completed pilots with potential customers, but no significant net sales so far.

Betolar invests in strong R&D, which has resulted in 5 granted patents and 8 open patent applications for the company.

By the end of 2026, Betolar aims to generate EUR 200 million in net sales and positive operational cash flow.

# Company description and business model 2/9

Geographical expansion could also be easier within large customers if Betolar had good references from other subsidiaries within the same group.

On a global scale the global giants in the fragmented concrete industry (cement is more concentrated) are involved in significant R&D projects of their own to reduce CO2 emissions and we do not believe these companies are a potential customer base for Betolar, at least currently. The giants in the industry are also heavily tied to conventional concrete and cement production in terms of production capacity, balance sheets and their way of thinking. We believe that this makes it more difficult for them to reform the industry logic with completely new solutions that do not necessarily need existing infrastructure to operate, at least to a significant extent.

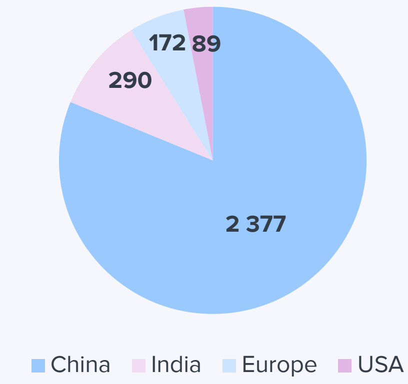
According to the prospectus, Betolar's potential customer base includes more than 450 customers in Europe and Asia. We suspect that this amount does not include the giants in the industry nor very small local operators. We do not believe Betolar should spend time on the latter as the potential net sales from the customer is too low and the output/input ratio for Betolar is therefore unsatisfactory. In the next few years, the company's customer base will also include mining and soil stabilization companies that next to the construction sector are major concrete consumers. In these segments, we believe that customer-specific net sales potential may even be higher than in the value chain of the construction industry, as the average projects in these segments are large. Therefore, we consider expansion into these areas logical.

### Initial focus on Europe and Asia

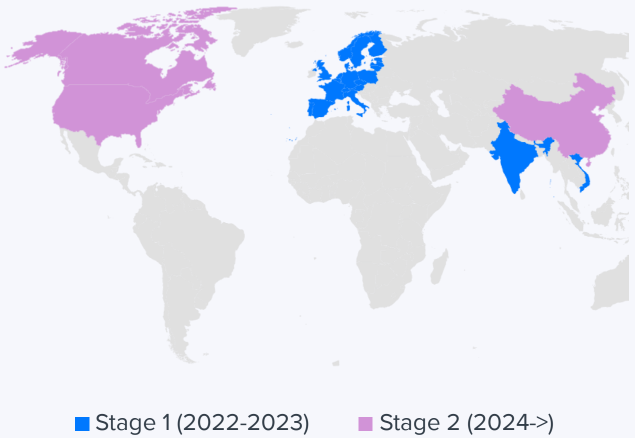
Betolar has started to grow its business in Europe and certain Asian countries (e.g. India and Vietnam). Although we believe that the European market alone would, in terms of its size, be sufficient for Betolar in the short and medium term, and a wider geographical strategy raises the company's cost structure more quickly, we consider a simultaneous expansion to Asia to be justified, as the role of Asia (especially China) as an end user of concrete is dominant. Thus we find it necessary that Betolar as an industry renewer must be present in the dominant market of the industry from the outset.

We estimate that the company's priority in Asia next to India and Vietnam is China, where preparations for market entry have started for the launch of commercialization planned for 2024. In North America, we expect Betolar to expand in 2024 at the earliest. Expansion to North America can also take place through global customer relationships, which would not necessarily increase Betolar's fixed cost structure as much as expansion merely through new customer acquisition. As a whole, Betolar's business is global as is typical for a technology company, although there are many local elements in the industry as well.

**Cement production by area (million tons)**




**Betolar's target markets**




Source: CEMBUREAU, Betolar

# Company description and business model 3/9

## Net sales are primarily generated from licenses and activators

According to the business model presented in the prospectus, Betolar aims to sell both the licenses to use the concept developed by the company and the activator needed for production to the above-mentioned customer groups and geographical areas. In addition, it is possible that net sales also come from procurement of side streams (see page 11).

We estimate that Betolar primarily seeks long-term contracts that set preconditions for both net sales flows. However, even long contracts do not in themselves guarantee Betolar's future net sales and we believe that the license component is also largely tied to the customer's production volume, which naturally is determined by the end demand for applications by builders and real estate developers and ultimately by consumers. License components may also include a fixed element, the share of which we estimate to be small in contracts signed in the initial stages of commercialization.

We estimate that especially in the early stages of market formation there is no cyclicality or seasonality in end demand, but the trajectory of demand is defined by the desire and ability of concrete end-users to pay a somewhat higher price for a more environmentally friendly product. In addition, demand is also heavily driven by regulation, which is likely to increase the price of CO2 emissions in the future and cause additional costs, e.g., in the production of industrial waste. However, the threshold for starting production and end use of concrete based on Geoprime should be very low, as the investments required for implementing the Geoprime concept are small and the product characteristics of geopolymer concrete are not, in principle, different from concrete made with conventional cement. Therefore, we do not in principle believe that increasing the Geoprime offering would become a bottleneck for net sales growth but the limiting factor is demand and the commercial end.

## Sales margins of net sales items are clearly different

Betolar has planned that license-based net sales would cover costs related to the development of the company's technology as well as consulting work in the customer interface concerning, e.g., recipes and production optimization. In these cases, Betolar naturally must help its customers, because their own expertise in the partly demanding materials technology field would not enable Betolar's concept to be implemented quickly and efficiently enough.

Selling licenses does naturally not cause any additional variable costs for the company from direct purchases, so the sales margin of the net sales flow is very high (at best almost 100%). In contrast, the activator chemicals needed for the Geoprime recipe Betolar has to buy from the chemical industry, which means that the sales margin for activator sales is substantially lower than for license sales also in the medium and long term. Similarly, a significant share of the company's personnel costs and other operating expenses are related to underlying factors of license sales, such as continuous R&D and customer support.

### Revenue

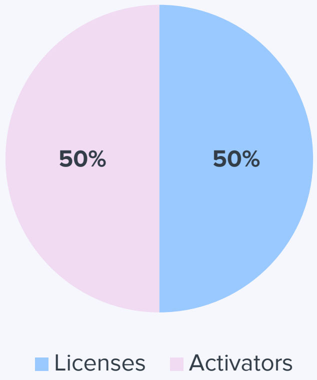
**Licenses**

- Production and marketing support
- Geoprime brand
- Constantly evolving recipes

**Activators**

- Activator chemicals needed to manufacture Geoprime concrete
- Betolar orders for customers as subcontracting from chemical industry players

### Estimate of net sales distribution in the medium term




Source: Betolar, Inderes

# Company description and business model 4/9

Thus Betolar's business model is inherently scalable, as long as it is able to keep the share of license sales high enough.

In its prospectus, the company estimates that licenses and activators will be distributed in the short and medium term at about 50/50, while in the long-term licenses should take over a larger share of net sales.

We believe shifting the focus toward licenses is possible, as the value the customer receives in the long run from Betolar comes mainly from materials technology expertise (incl. continuous optimization of the solution for different and alternating raw materials) and not from chemicals that are simple and relatively effortlessly obtained from the chemical industry.

We estimate that Betolar's minimal net sales of H1'22 included both license and activator sales. We also believe that license components play the key role in the company's 8 commercial contracts signed thus far. Thus Betolar gradually gains a track-record of the company being able to sell the idea of invoicing based on two components to its customers.

The alternative for Betolar would be to price the activators higher and not to ask for a license fee. This could be an option in individual cases if the customer, for one reason or another, is reluctant towards license-based invoicing. In Asia, in particular, customers are typically less used to paying for licenses and/or giving royalties to their suppliers, while in Europe, including licenses in contracts can be somewhat easier, especially with a mainly volume-based structure.

We believe that Betolar's contracts are invoiced either in euro or US dollars for both net sales components. We, therefore, estimate that the currency risks borne by the company will be reasonable, even though Betolar is already operating in developing Asian countries and emerging markets are part of the company's strategy.

### We expect the company avoids license-free and exclusive contracts

Overall we expect Betolar to avoid contracts that do not include a license component to make it easier to keep the long-term value promise in the eyes of the customer. We also believe that committing to the license is not a disproportionately risky decision from the customer's viewpoint as the license is also volume-based and not fixed-priced. This should make sales somewhat easier even though we suspect that invoicing for two separate components is not the easiest solution from the customer's viewpoint. We suspect that Betolar is prepared to also sign license-free contracts with some individual customers, but in these cases the activator price must be higher in order for the customer's overall profitability to reach the targeted long-term sales margin. We do, however, emphasize that achieving the targeted sales margin in the long term also requires that Betolar as a whole achieves a certain critical volume mass as we believe the scale affects the company's unit costs and its power to negotiate commercial terms with its customers.

Betolar does not currently open the distribution of net sales for licenses and activators, so it is impossible to follow the distribution of net sales outside the company. We expect that in accounting the license fee will be recorded based on the actual volume and in terms of the small continuous component over time, so in principle we do not expect Betolar's net sales to fluctuate with the timing of when license contracts are signed, but rather to develop fairly evenly with the production volume of Geoprime concrete. By contrast, activator payments are recognized on a straight-line basis according to actual deliveries.

As Betolar is commercializing a new technology that partly creates pressure for change for the entire industry structure, we find it likely that at least the first potential customers would in many cases be interested in exclusive rights to the Geoprime concept. With exclusivity the customers who would be first to adopt the solution would get ahead of the competition when their competitors would not be able to offer products with a comparable emission load. Similarly, exclusive rights would limit Betolar's commercial potential, as the market for the manufacture of building concrete or concrete products, in particular, is local and fragmented and too detailed exclusive rights could limit Betolar's market size.

# Company description and business model 5/9

We, thus, believe the company is seeking to avoid giving exclusive rights to limit them in time and to specific product groups and regions. So far, this seems to be working, as only two of the existing commercial contracts have exclusive territorial and time-limited rights.

### Process begins with preparing the right recipe

After identifying a potential customer and preliminary discussions, Betolar will create at least a partially tailored product commercialization plan for the customer. The plan includes the steps for the recipe of the final product and productization (incl. certification, etc.).

Replacing cement in concrete production requires, in addition to Betolar's activator, also a suitable industrial side stream, which forms the desired chemical reaction with the activator, thus hardening water and stone into concrete like cement does. So far, Betolar has researched several hundreds of side streams and of these about 15 applications in more detail. At this stage side stream substances that have been recognized as potentials include ,e.g., fly ash, slag, clay, natural pozzolans, bauxite and ash from burning rice husks. Several of the above-mentioned side streams have already been successfully utilized in the concrete industry.

### A suitable side stream is a key component of the solution

We estimate that the key strength of Betolar's concept is, at least in theory, a broad fit for different side streams. However, Betolar's development work also seems to be the most advanced in fly ash and slag (GGBFS) from the steel industry, which, due to the existing use in the industry, are in some cases exposed to heavy competition and higher prices. For other side streams, certain challenges for Betolar are at least so far presented by the impurities they contain, and achieving adequate product characteristics for all available side streams is unclear. If side-stream independence could be reached it would enable the concept to be globally, flexibly and cost-effectively scaled relatively quickly, so success in developing this area is critical to the company's long-term competitiveness.

Some of the mentioned side streams are global and some local. Their available volumes, current use and prices also vary significantly. However, in the big picture, we expect regulations to tighten the processing requirements for industrial side streams and limit the possibility of exporting side streams to landfills (incl. stricter environmental permit requirements), especially in Europe. Thus an increasing number of side streams will gradually become a bigger cost problem for industry, so the supply side of side stream raw materials should in principle develop favorably for Betolar, as long as the volume of potential side flows continue increasing.

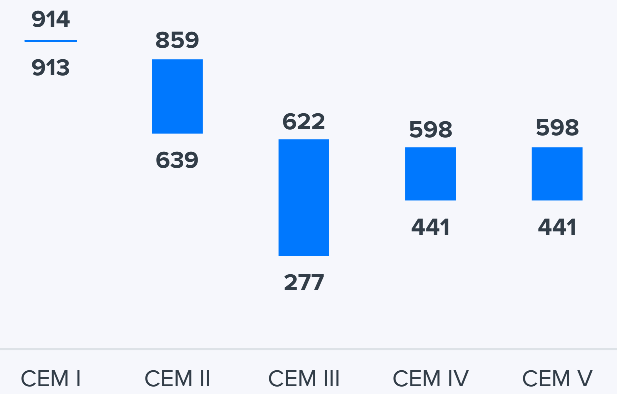
### Potential side streams in Geoprime

| Material | Price[1] EUR/ton | Trend of availability | Frequency of use |
|---|---|---|---|
| Fly ash | >20 | ↘ | ◕ |
| GGBFS[2] | 30-120[3] | ↘ | ◕ |
| Clay | N/A | → | ◔ |
| Pozzolans | N/A | → | ◔ |

Stable availability → Common ●
Lower availability ↘ Not in use ○

[1] Prices are indicative
[2] GGBFS = Ground-granulated blast-furnace slag
[3] In Asia, price close to the lower bound, in Europe price close to the upper bound

### Range of $CO_2$ emissions of most common cement types[4] (kg/ton)




Source: Betolar, Inderes, UK Quality Ash Association
[4]Further information on cement types can be found in the table on page 21

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### Side streams are a big cost component

We believe, the key to long-term cost competitiveness of the Geoprime concept is optimization of side streams in terms of prices, price differences and availability as our view is that most of the costs of Betolar's solution are generated from the side stream (incl. its logistics). For example, in blended cement the demand for common GGBFS and fly ash and highish market prices in Europe have made and will probably continue to make the use of new side streams more attractive.

In China, where coal is an important source of energy also in the medium term, these more traditional side streams remain highly available. Therefore, Betolar's concept is likely to be able to compete faster in the same price class with common Portland cement-based concrete in Asia. Similarly, in Europe, the price level of the end product is still higher, but on the other hand, the green demand trend is further along and the price pressure on emissions is likely to increase more quickly. Thus, the willingness and ability to pay a small premium is probably higher in Europe.

### Betolar finds the best possible side stream for each customer

Betolar aims to find the most advantageous side stream for each customer as close to the customer's production as possible. Conversely, we believe the company seeks for potential customers close to industrial side streams that have been identified as high-quality and cost-effective. Furthermore, sustainable commercialization in the long term requires that the availability of the side stream is secured in the long term, and that the stream and activator mixture provides sufficient product characteristics.

As stated, as part of the Geoprime license, Betolar offers its customer continuous side stream research and recipe development. Thus far, these are mainly manual expert work that requires a trained workforce as well as customer-specific or side stream based customization. Betolar is investing in developing a databank and AI, the success of which we believe would bring significant scalability to the business and enable achieving the long-term target profitability.

### There may be flow-through items in the income statement and balance sheet from the side streams

Although Betolar plays an important role in developing customers' recipes and product characteristics (incl. cost level), we believe Betolar's goal is that its customers and the industrial plants that produce relevant industrial side streams agree on the side stream supply and its commercial conditions among themselves. Thus, Betolar would have to commit less resources to run the supply chain (incl. purchases and logistics, etc.) and to working capital.

In practice, however, we find it likely that some customers like Betolar to provide a more comprehensive solution, with both side streams and activators delivered directly to customers' plants. In practice, this is not an insurmountable problem for Betolar, as long as the higher resource requirements and commitment of working capital are adequately priced in both license and activator components. Possible running of side stream procurement and sales would probably increase the company's net sales with a low additional margin. We believe that this should be considered when assessing the company's future growth rate, although this is difficult to date due to the limited reporting of net sales. We estimate that the medium- and long-term growth targets set by the company do not include an assumption of side stream flow through the income statement and balance sheet.

### After designing the recipe piloting is carried out on an industrial scale

After finding the suitable recipe, Betolar and the customer validate the solution by piloting the design in industrial production. The pilot phase lasts about 4-7 months and, according to the company (prospectus), the costs are EUR 5,000-15,000 per product (i.e., several pilots can be made with one customer for different products). We estimate that this only includes the direct costs of piloting, and piloting also ties up Betolar's personnel.

During the pilot, the product's features, quality and cost-effectiveness are optimized to maximize the conditions for commercial success. Betolar receives no net sales from pilots and sales will start to accumulate if the company and the customer can agree on the construction of the commercial concept during and after the pilot.

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Betolar's aim is to complete some 10-15 pilots per year, which the company has easily achieved so far. This illustrates the fundamental attractiveness of the concept to a broad customer base.

### Pilots have moved to a commercial phase with good efficiency

So far, Betolar has been able to take a majority of its pilot customers to a commercial phase after the pilot, which we feel indicates high satisfaction among customers with the concept. Betolar currently has several dozen customers between the pilot phase and a commercial contract (36 pilots have been completed).

Thus, we feel the conditions are good for accelerated development of the commercial phase, although this is, of course, dependent on end-customer demand. If Betolar's concept is successful, the company becomes better known and the reorganization of production becomes more routine, and we believe the company could shorten or in some cases even skip the pilot phase. This could boost commercialization, but for the time being, we believe investors should consider the pilot phase part of Betolar's business model.

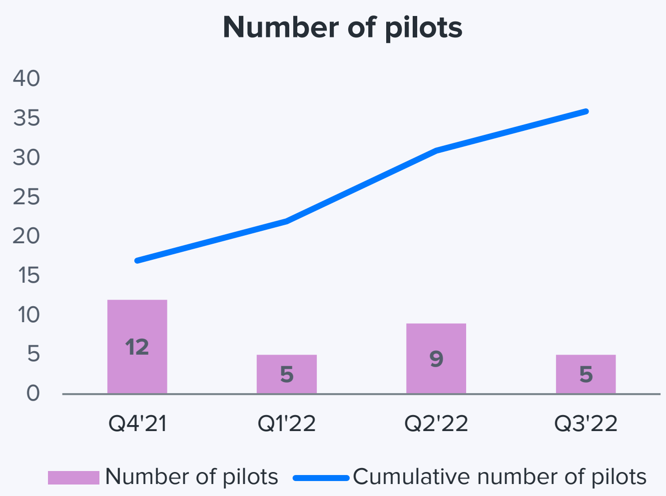
### Significant investments in R&D

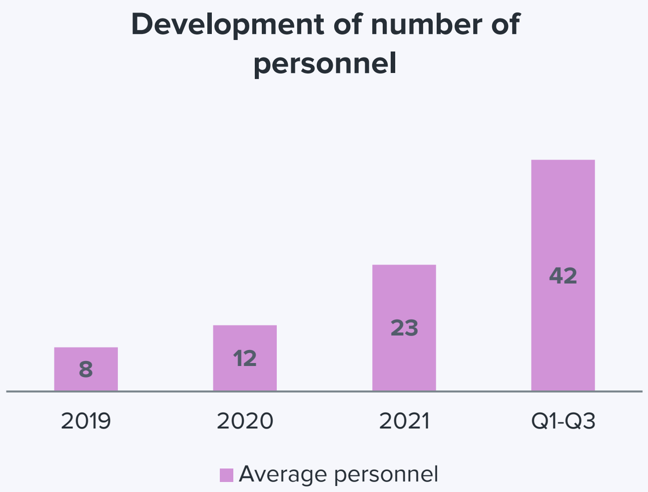
R&D is a critical part of the business model of any technology company, so we also expect Betolar to powerfully increase its investments in this sector in the early stages of commercialization. We also believe that the important role of R&D is highlighted by the fact that Betolar's top-level strategy is quite loose, which allows seeking new innovations on a rather broad front in materials technology (incl. outside the concrete industry). With the company's nature, research starts as a relatively early stage basic research and the company also cooperates with universities at the very beginning of the research chain.

### IPO means that short-term development funds have been collected

Thanks to the listing, we believe Betolar has good financial capacity to accelerate recruitment and other investments in R&D that supports commercialization. On the other hand, we feel the roughly EUR 30 million net assets raised in the IPO and the EUR 7 million debt financing agreed with the Climate Fund are not a significantly high amount of financing considering the company's ambitious targets. Thus we estimate that systematic implementation of the R&D strategy will demand that net sales starts to accumulate particularly starting from 2023, and/or that additional funding is obtained at the latest in the medium term.

Betolar has not directly opened its R&D investments, but we estimate that a significant part the company's personnel and other operating expenses are related to this area as the company is still developing its concept.




Source: Betolar

# Company description and business model 8/9

Overall, the cumulative losses of Betolar at EBITDA level have been EUR 9.3 million in 2019-H1'22. In addition, losses also occurred on a small scale in 2016-2018. As a whole, we estimate that the losses and investments are roughly at EUR 15 million level. This illustrates the relatively substantial resource needs required to reach the threshold of the commercialization phase of the concept.

Betolar has said that the majority of the 250 workforce targeted by the company in 2025 will work in R&D. In the long term, Betolar has announced that it aims to invest about 5% of net sales in R&D, which we consider to be a demanding target for a company that focuses on materials technology and develops an AI concept. However, long-term visibility is very limited at this stage.

### Development work relies on side stream research and AI application

Betolar's R&D function currently focuses on developing a digital tool needed to research the use of new side streams and for recipe optimization. An example of researching new side streams is steel industry slag purified from vanadium, the exploitation of which Betolar is researching in the concrete industry with two Australian vanadium recovery companies. In the future, the aim is to collect slag from vanadium production process as a side stream in the metal industry, but slag has not yet been collected from this production process.

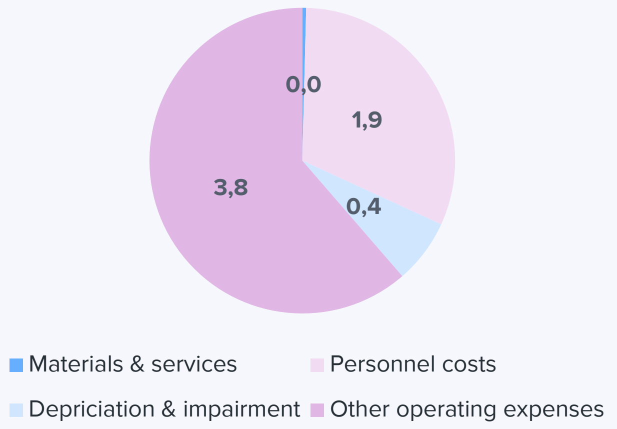
Betolar is developing the digital platform in cooperation with the AI laboratory Silo AI. The aim of AI is to, e.g., automate recipe-related issues and create tools for the customer to optimize production. In this respect, focus now lies on determining the data to be collected, developing the data storage infrastructure and utilizing the data in recipes. Development of tools related to production optimization is expected to start gaining more weight once the company collects more data on customer production when volumes grow.

We believe the AI project is still at a very early stage and clearer benefits that become visible in the company's financial data are only expected in the long term. If the development is successful, we expect it to support the value added generated by licenses to the customer. In terms of the scalability of the business model, we believe the development work is critical as thus far Betolar's operating model is rather manual and requires frontloaded investments in the cost structure (e.g. personnel).

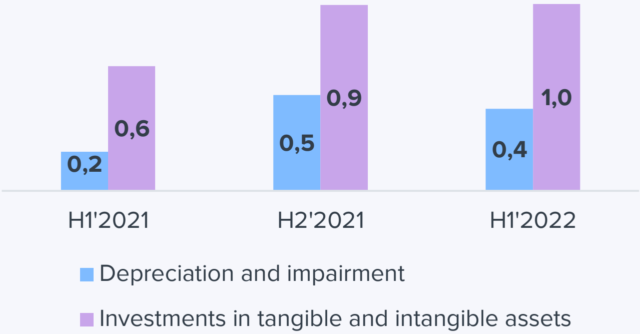
### IPR protection is an integral part of the concept

Betolar's business is based on the company's technological expertise, which the company has also sought to protect as far as possible. Betolar received its first patent already in 2019 and now it has 5 patents and 8 patent applications.

#### Cost structure H1'22 (MEUR)




#### Capitalized investments and depriciation (MEUR)




Source: Betolar

# Company description and business model 9/9

Patents have been granted in Finland and are partly international. These cover and protect certain business areas for a fixed period, but we believe that Betolar cannot, e.g., protect the composition of the activator except at the level of a business secret. For example, using placebo chemicals could make it more difficult to determine the composition of the activator but this is hardly a particularly robust copy protection.

We do not believe that if the contract between Betolar and a customer would end this would legally prevent the customer from using the existing recipe but changing side streams or changing the characteristics of the side stream would probably quickly make the recipe outdated. Therefore, we believe it is critical for Betolar to continuously develop its recipes, both in terms of product quality and cost-effectiveness, so that the customer's incentive to pay Betolar would continue. We therefore believe that soft IPR protections, competence maintenance and continuous development play a key role in the company's IPR strategy.

### A scalable cost structure is the goal

So far, most of Betolar's costs are related to personnel costs. In addition, a significant share of the costs has so far been related to external experts' fees, as well as business and administrative development that are recognized as other operating expenses. These cost items are more flexible in the short term than those related to the company's payroll, but investments are necessary to sustain growth and, in the long run, significant use of external services is naturally also expensive.

In addition, due to the company's high investment rate we do not find a closer inspection of Betolar's current cost structure very fruitful. Instead, we believe that investors should monitor the growth of the company's cost structure in particular and how it relates to net sales growth and cash assets. For example, the need to cut costs or to slow down investments would, in our opinion, be a negative signal of the development of commercialization. So far, there are no indications of such progress, and the company is planning to, e.g., nearly double its personnel in H2'22 supported by its strong cash position.

### Capital commitment is moderate in principle

As is typical for a technology company, Betolar recognizes most of its long-term development work as costs and capitalization has been limited so far. In addition, the company has no tangible investments and rents are recorded directly as expenses in FAS accounting. We believe that the AI tool that potentially brings significant added value to Betolar's customers, requires a lot of investments, some of which will be capitalized on the company's balance sheet. As a whole, however, we expect the company strives to keep its balance sheet light and investments low if, e.g., no targeted acquisitions are made to accelerate the AI project. Thus we feel the company has preconditions to achieve a high return on capital if the commercialization is successful and Betolar can achieve profitable growth.

In addition to intangible assets, creating new customer relationships may also require investments. In the future, this could mean, e.g., giving customers favorable terms of payment, which would be visible as an increase in working capital. The relationship between granted terms of payment and own accounts payable will partly be determined by Betolar's negotiating power, which is determined by the competitiveness of the Geoprime concept. As a rule, we believe the company should also be able to keep its working capital commitment low, as long as no greater flow-through items from side stream procurement need to pass through the company's balance sheet.

As a whole, we feel the potential capital lightness of Betolar's business model is very positive for investors, as it allows capital allocation to more profitable targets. However, we stress that the hypothesis can only be confirmed when Betolar has progressed further on the commercial front.

# Business model

**Significant reduction in $CO_2$ emissions a key element of the value proposition**

**Commercial applications**

**Strengthening of the brand**

- Success of commercial applications improves company recognition and facilitates new customer acquisition

**Accumulated data**

New project

Samples

**Tailored binder recipes for the customer's needs**

- Side stream from industry
- Activator chemicals

**Testing and data collection**

**Pilot 4-7 months**

- Ensure the functionality of the recipe and production
- No net sales for Betolar
- Direct cost EUR 5-15k

**Own data bank**

- Binder recipes
- Side streams

**Systematic data collection over the years to optimize concepts**

- Builds over-time reproducibility for customers as data on side streams and customers accumulate. Building a data bank is only just beginning and the process takes years.

**AI supported R&D**

**Initial development project**

- So far R&D is manual
- Ensuring scalability in the 2030s by automating R&D

**Tested solution**

**Introducing a verified commercial concept to the market**

- Applications for the construction, mining and soil stabilization sectors
- Customer support on the commercial front

BETOLAR

"Binder-as-a-Service"

Platform for constantly evolving solutions

Net sales:

Volume-dependent license

Fixed license

Volume-dependent activator fee

# Business model

BETOLAR

OPERATING SEGMENTS

**Betolar Plc (parent company)**

Developing and owning the Geoprime solution and IPR portfolio

- Geoprime solution and brand
- Materials and production technology as a service
- Expert services

- License fee
- Invoicing currency EUR or USD

**Betolar Chemicals Ltd** (100% owned subsidiary)

Procurement and sale of chemical activators to support Geoprime recipes

- Chemicals that act as activators

- Fees for chemicals
- Invoicing currency EUR or USD

**Long-term license contract of some 5-10 years and a contract for activator purchases**

CUSTOMERS

### Solution

- Reduces the $CO_2$ emissions from concrete production quickly
- Quality corresponds to conventional concrete
- No substantial production investments
- Quick implementation
- Suitable for large volumes of side streams and thus for global scalability
- Price of the end product in Europe is higher than for conventional cement, but in Asia relative competitiveness can be better

### Earnings model Betolar Chemicals

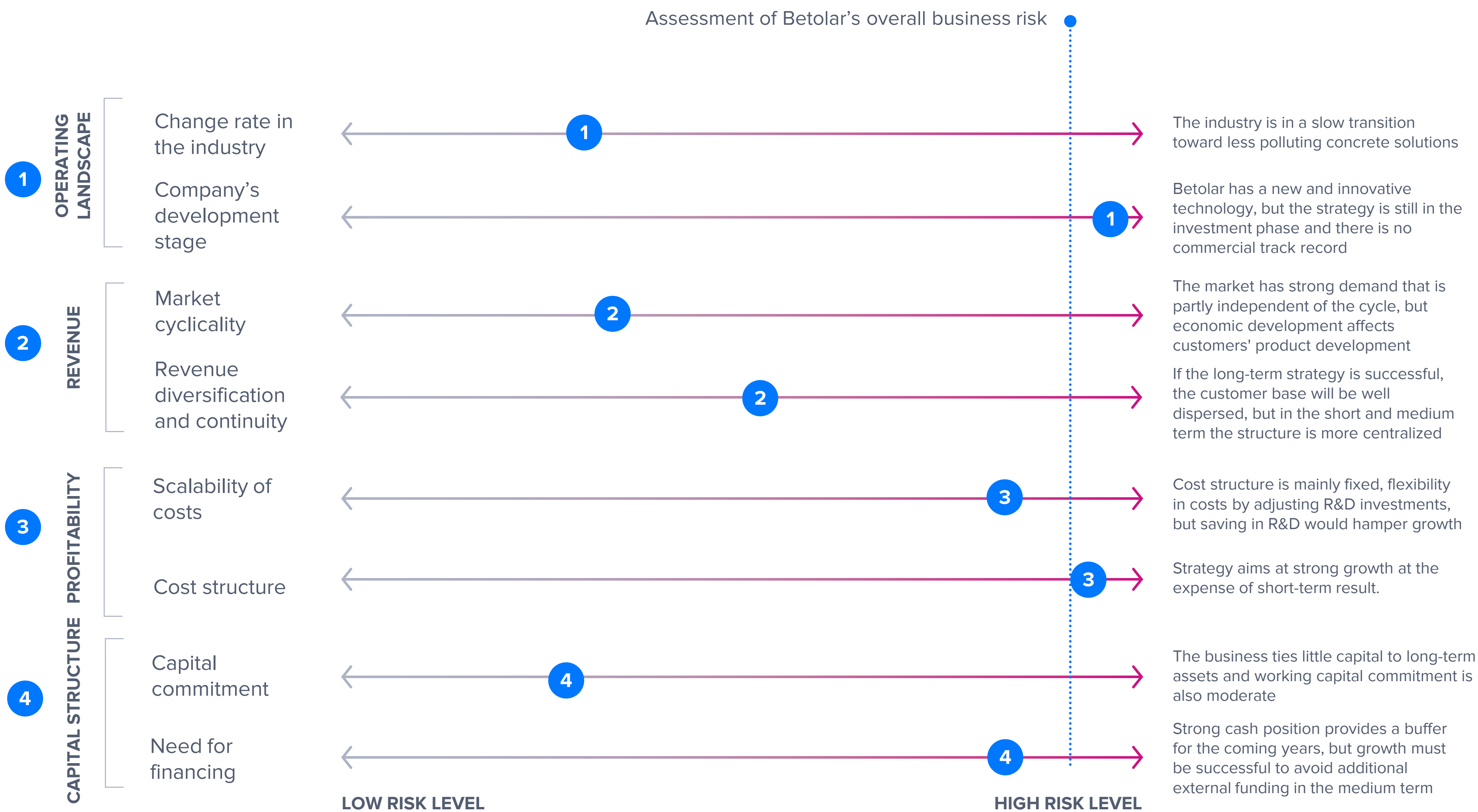
- Pricing is based on the customer's volume
- Initially activators are likely to form a larger share of net sales, but in the long-term the scalable business model relies more on licenses
- The license fee can also be charged as part of the activator fee
- The sales margin is at the typical level of an industrial company's material sales, as long as the volume reaches a sufficiently high level (i.e. the initial margin may be low)

### Earnings model Betolar Plc

- Small fixed license fee
- Higher volume-related component
- In the long term, probably a larger part of Betolar's net sales
- Income flow margin is very high and correspondingly development costs are high

Source: Inderes, Betolar

# Risk profile of the business model




Source: Inderes

# Strategy and financial objectives 1/3

2016-2021 — 2022 - 2026 — 2026-

### Technical development phase

- The company is established in 2016
- Expansion from small concrete product manufacturing to more extensive materials technology
- Technical development, concept design and first pilots of geopolymer concrete
- Financing of development and seeking EUR 30 million for scaling-up and commercialization through an IPO in Q4'21

### Commercialization of technology

- Increasing the number of pilots in Europe and Asia in 2022-2023
- First commercial contracts and their ramp-up in Europe and Asia
- Expansion to North America and China in 2024 at the earliest
- The target strength of the organization focusing on product development, sales and supply chain management is 250 persons in 2026
- AI development starts

### Building scalability

- Increasing global commercial sales
- A significant share of the target market already known customers
- Developing AI and digitalization into pillars that scale profitability
- Continuous investments in sales and marketing, as well as product development and IPR protection

## Must Win Battles in the strategy

### Implemented

- Geopolymer concrete has been proven to be a technically viable solution and suitable for global scaling
- IPR is protected with patents and other protection measures
- Development of a market-entry strategy
- The framework of an organization aiming at commercialization is created
- Financial needs of the next few years are safeguarded

### Medium term

- Expanding the side stream base
- Converting pilots into commercial customers with good efficiency
- Scaling up customer-specific sales
- A balanced accumulation of net sales from activator sales and licenses
- Geographical expansion
- Successful recruitment
- Turn operating cash flow positive towards the end of the period and possibly avoiding the need for external financing

### Long-term

- Ensuring the technological pioneer position through R&D
- Most of net sales come from recurring licensing-based sources
- High market share in the low-emission concrete market
- Achieving the high levels of scalability and profitability of a technology company
- New business starts in materials technology

Source: Inderes

# Strategy and financial objectives 2/3

## Betolar's key strategic objectives

### Launching international business

*Increasing pilots and commercial contracts, first in Europe and Asia, and then globally*

### Access to industrial side streams

*Enabling a logistically attractive side-stream solution for the customer by making the concept flexible for new materials*

### Building a data-based ecosystem

*The AI solution that supports product development enables business scalability and supports a license-based earning model*

### Building industrial partnerships

*Betolar positions itself as a partner for concrete manufacturers and industry, which enables collaboration with a wide range of stakeholders without a competitive setting*

## Inderes' comments on Betolar's strategic focus areas

- In principle, the broad applicability of the method to different industrial side streams enables global scalability of the concept
- Asia (and China in particular) dominates the global concrete market, which is why we believe it is logical to invest in the region now, even though the green trend is further advanced in Europe. Adding other areas to the supply will only increase the overall market slightly
- International growth increases frontloaded costs and we do not believe that the 9 MEUR estimated in connection with the IPO will be sufficient to scale the concept

- The cost efficiency of Betolar's Geoprime concept requires side streams to be discovered close enough and at a competitive price
- Side stream optimization is an important part of the added value Betolar generates for the customer and represents an area where the company has the competence to differentiate itself
- Some side streams may be subject to increased competition as the circular economy progresses but tighter regulation brings new side streams to reuse

- So far, the business is still quite manual when all new customers or at least all side streams require a tailored concept
- Reducing customization is a prerequisite for business scalability
- There are certain ambiguities related to data ownership and distribution
- In the long run, we suspect that the development of AI and digitalization will require more money than the planned EUR 21 million from the IPO funds and EUR 7 million from the Climate Fund

- Betolar is a small company with limited resources, which makes actively seeking partners sensible
- We estimate that there are willing partners in the fragmented concrete industry, especially among small and medium sized companies
- The tightening emission and waste requirements in industry make players like Betolar an attractive partner for industrial companies in general

# Strategy and financial objectives 3/3

## Medium-term financial objectives (within 4-6 years)

### EUR 200 million net sales by 2026

- We believe that reaching this goal would require at least 150-250 commercial customers from 2-3 continents
- Due to the company's early stage there is no track record of growth yet
- Capital-light and partnership-based business model in principle enables even rapid growth
- The target market is large and Betolar's market share even with the 2026 target net sales would not be particularly significant
- The estimated number of employees in 2025 is 250, so there is work to do in recruitment for growth

### Positive operating cash flow

- In the early stages of global scaling, costs increase in a frontloaded manner, particularly in terms of personnel costs and other expenses
- Licenses represent about 50% of total net sales and the sales margin for activators is healthy
- We estimate that achieving positive cash flow is also possible with lower net sales than the target, but on the other hand, growth in line with the target does not necessarily push the company beyond the target due to frontloaded costs increasing
- We estimate that the company will continue making small investments in intangible assets and fixed investments will be low, which means that free cash flow is only slightly lower than operating cash flow

## Long-term financial objectives (within 10 years)

### Net sales EUR 1 billion

- We estimate that achieving the target would require 200-300 customers and a significant increase in average invoicing by 2026
- We consider the target to be more of a vision considering the early stage of the company and it is based on the global business model and the large achievable market
- We do not believe the objective includes flow-through of significant industrial side streams through the balance sheet, which could result in clearly higher net sales
- If the target is reached, Betolar would naturally be the global market leader in 'green concrete'

### Adjusted EBITDA % at least 30 %

- We estimate that a 30% EBITDA margin would require a sales margin of some 70-75%, which in turn requires significant license sales and success of the underlying AI and digitalization development
- In the long term, we estimate other operating expenses will be about 20-25% and personnel costs around 10% of the company's net sales to meet the target
- We consider the margin target realistic for the company's business model if net sales hit the half a billion mark and scalability gradually strengthens around the turn of the decade

**Long-term non-financial objective: Cumulative emission reduction of 150 million tons of carbon dioxide within 10 years:**

- According to Betolar, the calculation is based on the average $CO_2$ emissions of Portland cement at 2021 emission levels. The concrete industry is aiming to reduce emissions, so the actual "reduction" will probably be smaller. The price of emission allowances in Europe has been EUR 54-99 per ton in the last year. Globally, the price of emission allowances is still clearly lower, but on the other hand, the price of $CO_2$ emissions is likely to rise in the pursuit of climate objectives. Based on the target reduction and current European price levels, the value of the cumulative "emission reduction" would be in the order of a billion. We believe this primarily describes Betolar's large target market, but it is still difficult to draw more precise conclusions from this objective.

# Market and competitive field 1/5

## Concrete production determines the demand for cement

As a technology, cement has stood the test of time, as cement has been used for construction even before the beginning of the western era, e.g., in ancient Rome, and modern Portland cement was developed in the 19th century. In 2019 a total of 4.2 billion tons of cement was produced globally which roughly corresponds to a market of around EUR 200-400 billion. Cement is primarily used to manufacture concrete. Cement is mixed with water and sand, and when dry, this malleable mixture forms a strong, durable and inexpensive structure called concrete. Concrete is the most common building material in the world, so it has a large and well-established user base.

## Market growth is slow

By far the largest cement producer is China, which accounted for 57% (2020) of world cement production. In 2019, the use of cement was divided into infrastructure construction (43%), residential construction (32%) and commercial real estate construction (16%). Thus, the main drivers of cement and concrete use lie in the global construction industry.

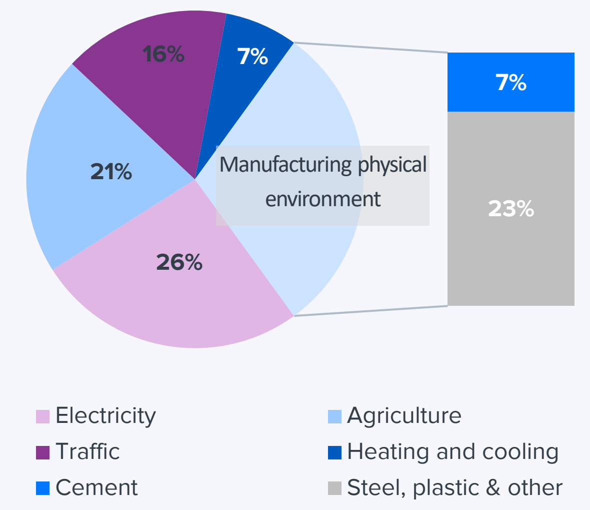
Global cement production growth is driven by urbanization. The growth rate in China where more than half of the world's cement is produced, is, however, slowing down. In Africa and India, cement production is growing more rapidly, but in Europe growth is also slow. According to CEMBUREAU and KPMG, the growth in cement production has been around 1% in 2016-2021 and the expected value for the next decade is at most at the same level. Therefore, the market is very stable at the upper level. The concrete and cement markets are huge in size relative to Betolar, so we do not see the lack of top level market growth as a constraint for the company. In addition, the company is positioned in a growth pocket of very low-emission cement.

## The problem with Portland cement is emissions

Almost all cement produced in the world is called Portland cement (CEM I/OPC). Portland cement is produced by heating limestone in a kiln, which releases carbon dioxide from the limestone, leaving clinker used as cement raw material as the end product. This reaction generates most of the CO2 emissions from the cement manufacturing process. As a whole, the carbon dioxide emissions from cement account for 7-8% of global CO2 emissions, so the sector is a significant source of emissions and innovation in the cement production process plays an important role in reducing global CO2 emissions. In many other carbon-emitting uses, emissions can be eliminated by switching to renewable energy, but in the manufacture of Portland cement the release of carbon dioxide from raw material (limestone) is inevitable even if the kiln is heated with renewable energy.

No major breakthrough technology has been seen in cement production since the 19th century and efforts have been made to curb the growth of CO2 emissions mainly through improving process energy efficiency.

### Global annual $CO_2$ emissions (51 billion tons)




### Share of side stream by cement type

| Cement | Share of side stream |
|---|---|
| CEM I: Portland cement | 0% |
| CEM II: Portland blended cement | 35% |
| CEM III: Blast furnace slag cement | 36-95% |
| CEM IV: Pozzolan cement | 11-55% |
| CEM V: Blended cement | 26-80% |

Source: Breakthrough energy, UK Quality Ash Association

# Market and competitive field 2/5

The highest expectations for reducing emissions in the industry are currently based on two technologies. The first solution to reduce emissions is carbon capture and storage (CCS) and utilization (CCUS). By utilizing this technology the emissions from the existing production infrastructure could be cut significantly but the required investments in the system's pipelines and logistics infrastructure are substantial. CCS technology is relatively well suited to the cement manufacturing process as the high carbon dioxide content of emissions facilitate capture.

Another major technological step forward is related to the development and introduction of alternative blend components, reducing the need for polluting Portland cement. The Betolar solution is, naturally, included in the latter category.

### The market for other cements or cement substitutes is still small, but growing

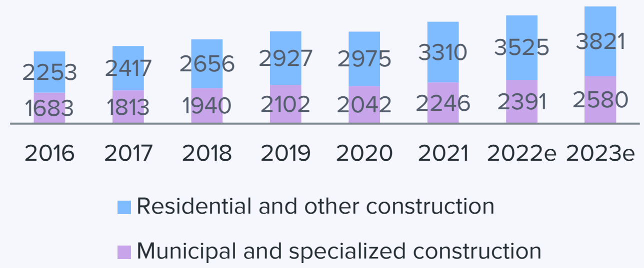
In addition to Portland cement, the European cement standard identifies four other lower-emission blended cement types that are Portland blended cement (CEM II), blast furnace slag cement (CEM III), pozzolan cement (CEM IV) and blended cement (CEM V). It is worth noting that there is still no standard for cement-free concrete in the EU or elsewhere. We believe that this is a challenge for Betolar for the time being and that getting a standard would create better conditions for commercialization.

The problem with blended cement has been, e.g., the slow hardening and the availability of obtaining regulatory approvals for construction use. We believe that Betolar competes especially in the CEM III category and solutions higher than this. According to KPMG's market research the combined size of these markets is still small but will grow rapidly to around EUR 1.5 billion by 2026. We believe the expected market for this niche segment paints a better picture of Betolar's short-term market potential than the value of the entire cement market. However, in the long run, the playing field is bigger, although we estimate that the availability of suitable side streams may limit the potential of the overall market to some extent. Compared to Betolar's current size and growth ambitions we feel the size of the market is sufficient for the company and factors that limit growth will for a long time be found elsewhere in the market.

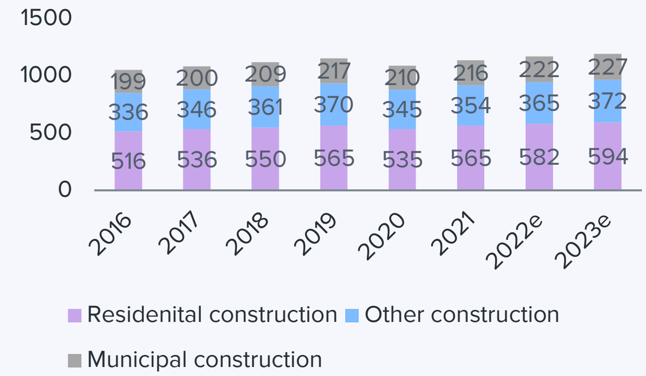
### The cement market is dominated by global giants

Changes in the cement market have been slow due to capital intensity, market conservatism and centralization. In this mature market, global giants have sought economies of scale by expanding in size and industry integration has advanced. Investments in cement plants are long-term and investment payback periods can be up to 30 years. Thus replacing existing infra with more environmentally friendly and efficient production facilities is a long-term process.

**Development of Betolar's key markets in Asia (EUR bn)**




**Development of Betolar's key markets in Europe (MEUR)**




Source: Betolar

# Market and competitive field 3/5

In the concrete market served by cement producers, material transport generates a significant part of the total costs, so a short distance between the producer and the end use location offers a competitive advantage. Thus, the material-intensive concrete market has become more fragmented than the cement market. We estimate that the low number of competitors in the cement market and the high number of players in the concrete market reflect the strong negotiating position of cement producers in the value chain. Thus, concrete producers are likely to accept an environmentally friendly rooter to the concentrated cement market, especially as Betolar is profiled in the value chain as a manufacturer of concrete and concrete products rather than a competitor.

The homogeneity of the end product and the standard production process leaves limited possibility for players to differentiate with product characteristics. Thus, we estimate that the role of price has become emphasized in market players' decision-making. Environmental friendliness is one of the few ways for concrete producers to stand out from the competition. In addition, cement companies that are enjoying economies of scale have limited incentives to change their business.

### Green cement is waiting for a breakthrough

Environmentally friendly cement production processes are being developed by the largest Western cement and/or concrete producers in the world, as well as new players with disruptive start-up like qualities. The world's largest cement manufacturers include, e.g., Cemex, LafargeHolcim and HeidelbergCement. HeidelbergCement is developing the first carbon capture and storage (CCS) infrastructure in cooperation with the Norwegian authorities to be built in connection with a cement plant, while LafargeHolcim and Cemex are developing geopolymer and blended cement solutions.

Large global players are well placed to finance research thanks to their huge scale. In 2021, R&D costs were EUR 230 million (0.9% of net sales) for LafargeHolcim, EUR 124 million for HeidelbergCement (0.7% of net sales) and EUR 35 million for Cemex (0.02% of net sales). You can read between the lines of the R&D investments and sense the low interest of established players in making significant innovations as the investments are low relative to net sales. In addition, Europe's strong position in the development of environmentally friendly cement is noticeable, as the R&D investments of European players are manifold compared to those of Mexican Cemex.

The technologies of the new innovative players rely on improved blended cements, the use of GGBFS and fly ash, geopolymer technology, and the mixing and storage of carbon dioxide in concrete. Betolar's geopolymer technology is not unique at the moment, and the challenge is to make sufficiently functional high-volume products efficiently.

We believe the French listed Hoffmann Green Cement (HGC) is currently the furthest in developing industrial scale blended cement based on environmentally friendly geopolymer technology whose first full capacity cement production plant is to be completed during Q3'22. HGC targets an annual capacity of 550,000 tons by 2024, which corresponds to 3% of France's annual cement demand. By investing in new infrastructure, the mainstreaming of environmentally friendly cement will at this rate take decades.

Efforts have also been made to solve the emissions problem by mixing CO2 with concrete, but so far, the solution's ability to cut emissions in commercial operations does not seem decisive. The Canadian-based CarbonCure has reached the commercial stage in mixing carbon dioxide and concrete but the actual CO2 emission reductions have so far been estimated at around 9%. BluePlanet's solution based on the same technology promises a 100% reduction in CO2 emissions, which we do not believe to be a credible objective if the company reaches the commercial stage.

In addition, new competition may also arise from concrete recycling as in Finland and some other EU countries the use of recycled concrete as building material became possible in Q3'22. However, little information is available on the properties, competitiveness and emission reduction potential of recycled concrete.

# Market and competitive field 4/5

### Betolar's solution appears competitive on paper

For the time being it is difficult to assess the actual competitiveness of Betolar's solution compared to competing solution providers given the emerging market and the early development phase of the company. On paper, the potential of Betolar's Geoprime appears to be competitive with other players thanks to the scale of the emission reductions, AI and digitalization, as well as side stream neutrality.

The best indicators for the relative competitiveness of different solutions will be concrete production volume, net sales growth and profitability. These meters indicate the commercial and industrial performance of the solution and we will continue to monitor them in the industry. In terms of competition, it is important to note that in an emerging and fast technological development market, the risk of new and stronger competition is always acute. There are no indications of solutions coming out of the left field that would technically be much better than Betolar and/or have greater financial resources.

### No money is made with green concrete yet

Despite the industry's ambitious emissions targets (carbon neutral by 2050), the market for environmentally friendly cement and concrete is still in its infancy. We believe that no company has so far managed to generate commercially significant business by producing concrete that is significantly more environmentally friendly than the basic qualities. However, the competitiveness of environmentally friendly cement production is likely to be supported by the tightening emissions trading in several markets under which cement production is already included in Europe (concrete manufacturing is not yet included). Thus, the difference in competitiveness between basic quality and environmentally friendly products should balance over time.

| | Company | Product | Operating principle of the technology | Promised $CO_2$ emission reduction |
|---|---|---|---|---|
| Conventional cement producers | HOLCIM | ECOPlanet The Green Cement | Blended cement, utilizing calcined clay and industrial side streams as a substitute for cement, and renewable energy as a source of energy | 30% |
| | CEMEX | Vertua Low carbon by design | Limestone-free cement substitute based on geopolymer technology | 70% |
| | WAGNERS | EARTH FRIENDLY CONCRETE | A cement substitute utilizing GGBFS and fly ash based on geopolymer technology | 70% |

Source: Inderes, Holcim, Cemex, Wagners

# Market and competitive field 5/5

Innovative players of the new generation

| Company | Business model | Operating principle of the technology | Promised $CO_2$ emission reduction |
|---|---|---|---|
| Hoffmann Green Cement Technologies | Production of green cement at its own plant and selling to concrete producers | Geopolymer cement utilizing fly ash and GGBFS. Manufacturing process does not require high temperatures | 83% |
| Carbon Cure | Selling a cleaner concrete production process and equipment to concrete producers | Adding liquid carbon dioxide to the concrete during blending | 9% |
| ecocem | Production and selling of blended cement, as well as processing and selling GGBFS | Manufacturing blended cement from slag of the steel and metal industry. Strong position in slag procurement in Europe | 50% |
| Solidia | The company has not yet developed a clear business model around its technology | Improving the energy efficiency of the cement kiln, injecting CO2 into the concrete and digitalizing the process | 70% |
| blueplanet | The company has not yet developed a clear business model around its technology, nor has it conducted any pilots on an industrial scale | Collecting carbon dioxide from emission producers and storing it in concrete as calcium carbonate or limestone | 100% |

**The technology of more environmentally friendly cement is evolving and the market is only emerging, so there is always a possibility of new technologies that are more competitive in terms of product characteristics, cost structure and emission reductions**

Source: Inderes, Hoffman Green technologies, Carboncure, Ecocem, Solidia, Blueplanet

# Financial position 1/1

### Cash is the only significant asset

At the end of Q2'22, Betolar's balance sheet contained no other significant assets than cash assets (33 MEUR). The net assets of some EUR 31.5 million collected in the IPO in December 2021 strengthened the cash position to EUR 37 million by the end of 2021, from where the position has reduced to EUR 33 million during H1'22. During H1'22, EUR 5.8 million of cash has been spent to implement the growth strategy. On the other hand, the cash position has strengthened when the Climate Fund paid the first EUR 2 million of the capital loan it granted to Betolar for development. The remainder (5 MEUR) of the Climate Fund's capital loan falling due in 2029 will be paid to Betolar in 2023.

In the short term, we believe that Betolar's cash position is good in the aftermath of the IPO and that the company's capital requirements for the next year are secured. Interest concerning the 2024-2026 situation grows as the business remains in a cash consuming development and growth phase.

Betolar's debt capacity is low, as the company does not generate cash flow nor own significant real assets. The company might have to apply for equity financing, but the situation depends on the size of the company and the overall situation when there is need for additional cash. We estimate that the company will not have to actively consider additional financing before the cash position hits a EUR 10-15 million range. We have commented the company's estimated capital requirements further in next chapters.

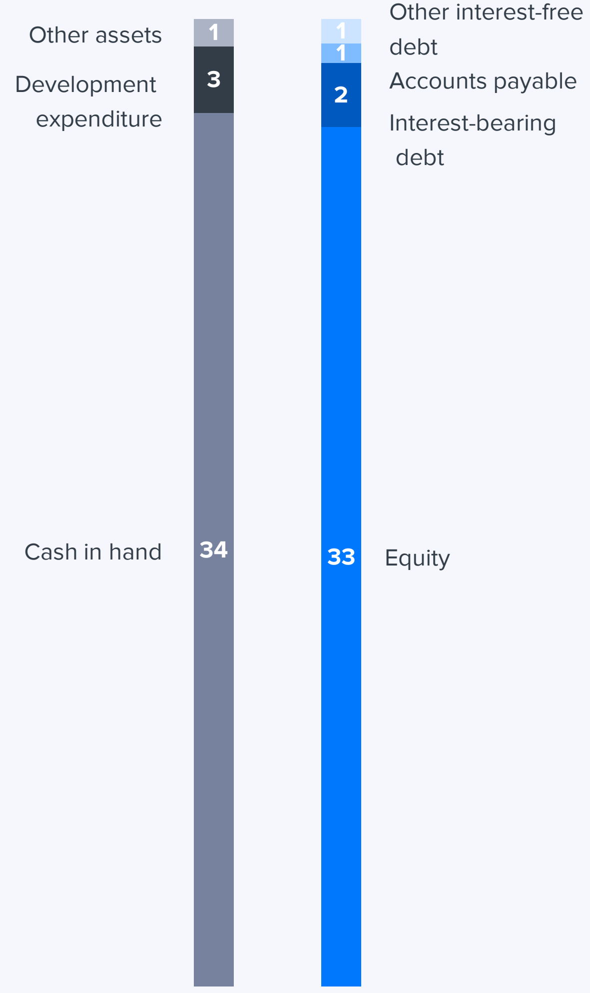
The second largest asset item in Betolar's balance sheet is development costs, into which the company has capitalized R&D related personnel costs and other operating expenses to the tune of EUR 2.5 million. In addition to cash and development costs, the balance sheet includes other assets of EUR 1.2 million. The balance sheet total at the end of H1'22 was EUR 37.2 million. The balance sheet is very light, especially excluding cash. We believe that maintaining a light balance sheet is a key and reasonable goal for the company and, if business scaling is successful, a light balance sheet would support the company's valuation.

### Balance sheet is mainly financed by equity

As is typical for an early-stage company, Betolar's balance sheet has largely been financed by equity (33 MEUR at the end of H1'22). The capital loan from the Climate Fund is recorded in liabilities in Betolar's balance sheet. The loan terms include, e.g., an interest rate based on the company's credit rating (exact terms not opened) and a dividend ban before repayment of the loan capital. We believe the loan terms are very tolerable and therefore Betolar's financial expenses will be low until possible new loans are taken.

In view of the balance sheet indicators, Betolar's balance sheet is very strong. However, we do not think it is sensible to assess them at this stage, and we focus on the cash position, how much cash is burned and new financial arrangements based on which the indicators will fluctuate. We expect that the company will allocate all available capital to growth in this decade, so no dividend is expected from Betolar.

### Betolar's balance sheet at the end of H1'22 (MEUR)




Source: Betolar, Inderes

# Estimates 1/5

### Growth potential is obvious, but on the other hand, predictability is very low

Betolar operates in a market with weak long-term growth but aims to benefit from the main trends that shake the industry as a whole and to win market share within a huge market. We expect the green revolution in the concrete industry to progress clearly over the next decade, driven both by consumer demand for more environmentally friendly solutions and regulation (incl. an increase in the price of carbon dioxide emissions and the impact on the relative competitiveness of its new solutions). However, there is considerable uncertainty concerning the timing of growth and the relative competitiveness of different technologies. The timing of market formation is uncertain and introduction of green applications on a larger scale can take a long time in a conservative market.

As said, Betolar is still an early-stage growth company that is only building a commercial basis for its business. Betolar's growth relies both on increasing the number of commercial Geoprime customers in different geographical areas and on increasing customer-specific sales. Due to the nature of the business in a commercialization phase, the company's history, or even the market history does not provide any support for estimates.

Thus, our growth estimates are based on a number of assumptions, whose accuracy will only be established over time. The assumptions concern both net sales and required growth investments (incl. income statement and balance sheet). It is therefore important for the investor to be aware of the exceptionally high uncertainties in our estimates. In addition to the neutral scenario included in our estimates, we also outline a significantly more positive (i.e. the company's financial targets are met) and more negative scenario (i.e. commercialization fails at least in the short term) in the valuation.

### Key estimate drivers

We estimate Betolar's net sales as one item, because the company does not publish net sales distribution. However, our net sales estimate includes assumptions about the change in customer volume and annual invoicing per customer. In addition, we have divided reported customers into three groups, based on the size of the customer's business, and hence our estimate of Betolar's sales potential. So far, monitoring this way has been relatively successful, as Betolar has actively announced its commercial contracts. The situation may change in the future if customers fall below the company's information threshold and/or the company does not start reporting the number of commercial customers. We also stress that the differences between customers will probably be very large and that an average approach to customers is a huge generalization, even though we do examine the net sales potential of announced customers relative to their announced volume targets and customers' net sales.

## Drivers for income statement estimates

| Estimate | Key parameters |
|---|---|
| **Net sales** | • Number of customers won by size class<br>• Development of customer-specific invoicing |
| **Costs** | • Sales margin % (sales mix)<br>• Number of personnel<br>• Personnel costs per person<br>• Other operating expenses relative to net sales<br>• Product development capitalization (5v straight-line depreciation) |

## Defining predictable customer groups

| Customer group | Description | Number* in main market |
|---|---|---|
| **Large customers** (Sales > 1 MEUR) | • **Large customers** Concrete manufacturers, net sales is over 100 MEUR. Incl. mining and infrastructure companies. | ~100-300 |
| **Medium-sized customers** (Sales 0.5-1.0 MEUR) | • **Medium-sized customers** with net sales of 50-100 MEUR. Incl. mining and infrastructure companies. | A few hundred |
| **Small customers** (Sales< 0.5 MEUR) | • **Local small concrete manufacturers**, net sales under 50 MEUR, low potential for Betolar | Several hundreds |

*Numbers are indicative and not all companies in the sector are identified as potential customers for Betolar. Main markets are Asia and Europe.

# Estimates 2/5

In our model Betolar's profitability and earnings growth are defined by net sales distribution at sales margin level into high-margin licenses and low-margin chemicals, the development of the number and average salary of personnel, and the ratio of other expenses to net sales. Especially for the first two parameters, predictability is weak, considering the reporting method of the company's net sales and margins, but the achieved sales margin and its direction provides a certain indication of sales distribution and its development as well. Deprecation development is based on our estimates of the level of product development capitalization and the rate at which they are depreciated.

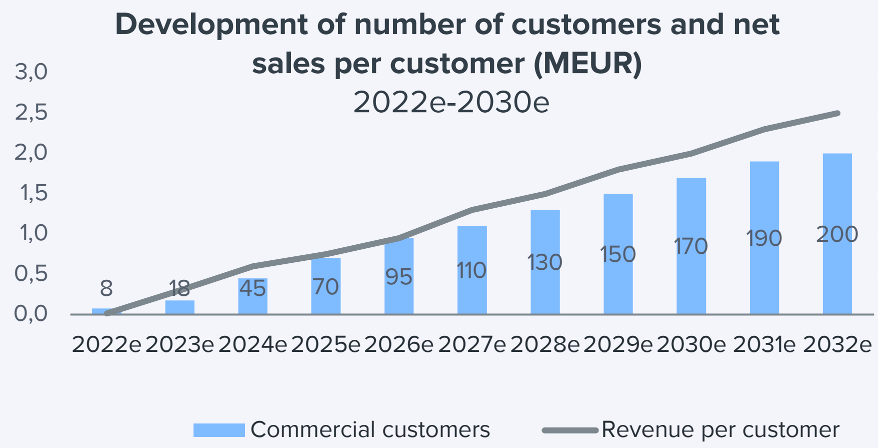
### Key assumptions underlying the estimates

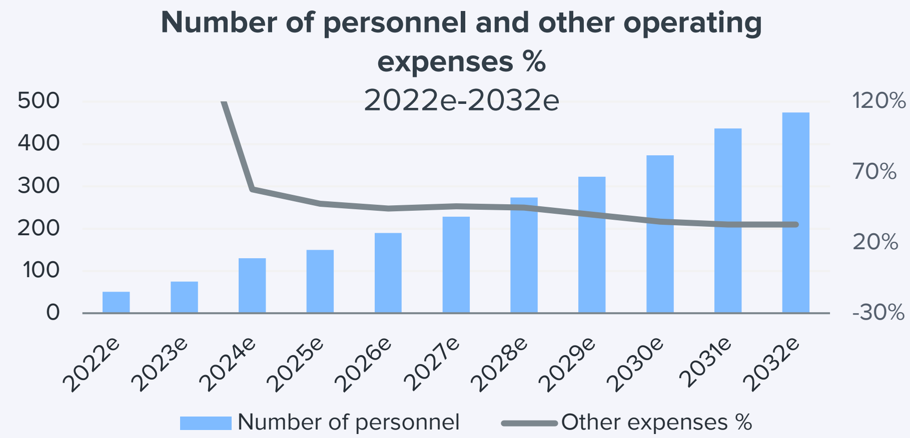
So far Betolar has announced 8 customers that have progressed to the commercialization stage while some 36 pilots have been completed.  One of the commercial customers is a company with high net sales of over EUR 200 million, while 3 are small local players with net sales of under EUR 20 million. There is no information about the net sales of three companies. In the long term, our estimate on the number of customers is based on the potential customer base of around 400 customers thus far indicated by Betolar and our estimate of long-term customer retention. Our estimate concerning the number of customers will be revised when we receive more data on the cumulative number of company pilots and on the progress of pilots to commercial contracts.

We estimate that net sales per customer will grow mainly from moderate levels, but in the medium and long term an average customer should be able to reach millions (naturally with very large customer-specific fluctuations). Our estimates do not expect significant direct invoicing sales from side streams, but later this type of low-margin items can increase growth and lower the sales margin.

In terms of license and activator sales, we expect sales to be initially activator heavy, while the focus will gradually shift toward licenses as the AI and digitalization project progresses. We estimate that the license sales margin will remain stable at a high level of about 95%, while the activator sales margin will gradually rise from a low level of about 20% with the volume. At the end of the estimate period, we expect the sales margin of activators to drop slightly.

We expect the number of personnel to develop at a slightly lower pace compared to Betolar's target (250 employees by 2025) reaching 250 employees by 2027.




Source: Inderes

# Estimates 3/5

We expect average wages to grow slightly over time, as the company is recruiting specialist skills in tightening labor market. We believe that the internationalization of the personnel and dispersion also to lower wage level countries will act as a balancing driver but we do not expect this to fully prevent wage inflation. In the long term, however, personnel costs are a cost item that should scale clearly if Betolar succeeds in implementing its business model.

We estimate that other operating expenses will be at a high level during business ramp-up, while in the long run as net sales grows the item should scale quite well. However, considering Betolar's profile as a technology company, we do not expect other operating expenses to fall below a 30% net sales share even in the long term since R&D requires investments both in personnel and other operating expenses.

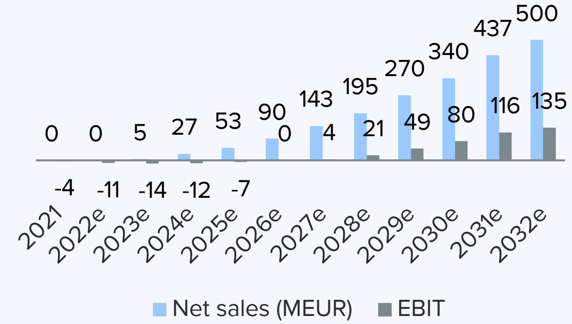
We estimate Betolar's investments to be at a moderate level, 3-7% of sales, as we expect that most development work will continue to be recorded as expenses. In practice, we do not expect the company to make any fixed investments. We expect, the intangible depreciation resulting from capitalization to be 2-5% of net sales in both the medium and long term, so we estimate that Betolar's EBIT % will be very close to the EBITDA %. Our estimates do, naturally, not include potential acquisitions, e.g., related to AI development and data management. Possible acquisitions could increase depreciation of intangible assets.

**2022 is still the ramp-up stage, but growth acceleration must come soon**

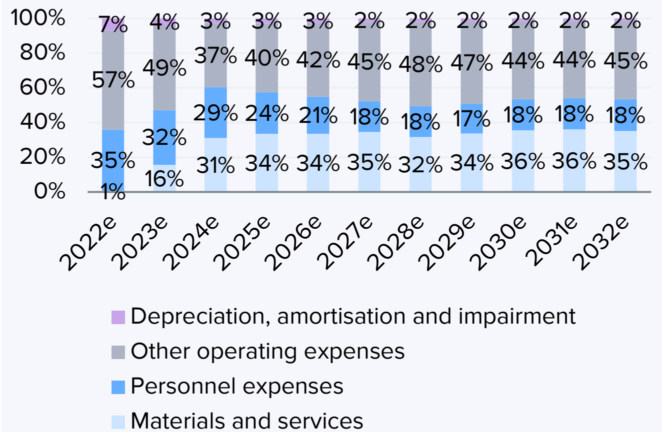
In the next few years, Betolar will build its organization, develop its products, acquire and ramp-up its first commercial customer relationships, and creates a foundation for accelerating and scaling growth with pilots. In Q1'22-Q3'22 Betolar's net sales was EUR 65,000 and EBITDA EUR -7.2 million, reflecting the early stage of the process. In Q4, we expect the company to be able to accelerate from H1, driven by a clear increase in commercial customers and slight growth in average invoicing. Our 2022 net sales forecast is EUR 0,3 million, based on an average number of less than 10 commercial contracts. We expect the cost structure to grow quickly, reflecting ongoing recruitment, so our EBITDA estimate for the current year is EUR -10,5 million. We expect Betolar to have some EUR 25 million in cash assets at the end of 2022 so the liquidity situation remains good, even though starting growth will burn cash at a rate of some EUR 1 million/month this year.

Next year, we expect Betolar's number of customers to grow clearly as pilots carried out in 2021, 2022 and H1'23 proceed to the commercial stage. Despite the weak economic situation, we expect the company's average invoicing to increase as the awareness and availability of environmentally friendly concrete and concrete products improves.

**Net sales and EBIT estimates,**
2021-2032e




**Development of cost structure,**
% of operating expenses[1]




[1]Expenses recorded in the income statement before EBIT
Source: Inderes

# Estimates 4/5

In 2023, we expect Betolar's net sales to be EUR 5.3 million, based on average invoicing of about 18 customers during the year. Customers are European and Asian (excl. China). We expect that the company will invest especially in commercial contracts next year, so the number of pilots "only" increases at an annual rate of some 15-20 customers seen in previous years. Thus, reaching 30 customers at the end of 2023 would require the company to be able to turn pilots into commercial projects with high efficiency.

We expect Betolar's sales margin to improve next year, mainly in light of the growing volume of activator sales and improving efficiency. We expect the number of employees to continue to grow strongly due to the company's aggressive medium- and long-term ambitions. Other operating expenses will also increase in absolute terms with net sales, but relative efficiency will improve slightly in this respect. However, due to the increase in the cost structure, we do not expect the company's cash burning rate to slow down next year, even though net sales will slowly start to accumulate. Thus, our EBITDA estimate for Betolar for 2023 is EUR -12.7 million. Considering low investments and other items affecting cash flow we expect Betolar's cash position at the end of 2023 to be around EUR 13,7 million. The cash position is supported by the capital loan from the Climate Fund being withdrawn in full.

**Commercial success is measured in 2024-2027, but scaling is still to come**

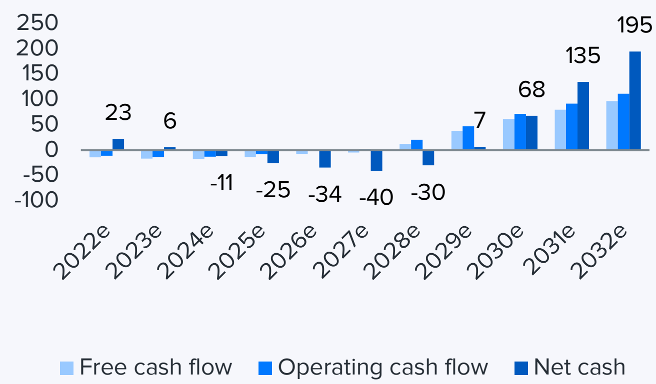
We believe the company's commercial success will be truly measured already in 2024-2027 and we feel that at this stage it should be able to generate accelerating growth in absolute euros. We expect growth to come both from increased numbers of customers and higher average net sales from customers. We estimate that Betolar's net sales will grow by 414% in 2024 to EUR 27.0 million, by 94% in 2025 to EUR 53.0 million and by 72% in 2026 to EUR 90 million. Our estimate is quite clearly below the company's target level for 2026, as we have included safety margins in both growth of the number of customers and average invoicing due to the company's lack of track record.

In 2024 and 2025, Betolar's cost structure will continue to grow strongly, both in terms of personnel (especially number of personnel) and other expenses. We expect the sales margin to improve slightly both in light of the growing volume of activator sales and the slight increase in the share of licenses. In 2024-2026 our EBTDA estimates are EUR -11.1 million, EUR -5.5 million and EUR 2.6 million. We consider it realistic that the company will reach positive cash flow in 2026 even with lower net sales than we estimate. Although we expect Betolar to improve its profitability clearly, especially in 2025-2026 and achieve a cash flow of about zero in 2026, we believe the company will need additional financing during 2024. In our model this is thus far seen as additional debt while equity ratio drops to negative territory during 2024.

**Estimated long-term distribution of Betolar's revenue streams,**
as % of net sales

| Licenses | Activators |
|---|---|
| 55-70% | 30-45% |

**Development of net cash and cash flow (MEUR)**




Source: Inderes' estimate, Betolar

# Estimates 5/5

In practice, however, we consider equity financing a more likely option, because when cash flow is reversed debt may not be available with reasonable conditions. We estimate that the company might need some 25-35 MEUR new capital to fund its strategy but naturally the capital can be acquired in smaller slots.

We find it likely that the company will receive the necessary additional funding one way or another at this stage if commercialization progresses at least to some extent in line with our estimates. This is also supported by the company's strong shareholder base. Therefore, the currently likely need for additional funding is a risk for existing investors, mainly in terms of price. We believe the company could avoid the need for additional funding by accelerating growth significantly faster than our current expectations, which would extend the current cash flow. We do not believe that Betolar will be able to achieve materially lower costs than we estimate without, e.g., a very undesired scenario of lower-than-expected growth considering the recruitment rate and amount of R&D investments.

### Scalability at the end of the decade

In 2027-2032, we expect Betolar's euro-denominated growth to reach its peak, and we expect the relative growth rate to be on a 15-60% slowing trend. Growth is especially driven by growth in customer-specific invoicing and an increase in the number of customers. At the end of the estimate period, we expect the company to have 200 customers, which corresponds to approximately 50% of the currently identified potential customer base. Average invoicing rises gradually in our estimates to around EUR 2.5 million. Our 2032 net sales estimate is EUR 500 million, which is clearly below the company's over EUR 1 billion target. Given the huge size of the market and the expected revolution, we do not believe that the target is entirely utopian, but we believe it is justified to wait for clearly more concrete signs of growth from the company and achievement of the 2026 milestone before raising the neutral scenario to the target level. Visibility to 2032 is non-existent in all respects and the margin of error is large.

In 2026-2032, we expect the growth in the company's cost structure to slow down clearly in terms of personnel costs and other operating expenses, which, together with net sales growth and slightly improving profitability will gradually scale profitability. In 2032, we expect Betolar will reach a 29% EBITDA margin which is quite close to the company's target level. We consider this possible despite lower net sales, but it requires successful AI and digitalization development and a business model that relies heavily on licenses. In 2032, the company's sales margin is 74% in our estimates, personnel expenses are about 13% and other operating expenses about 33% relative to net sales.

### We expect the return on capital to eventually stabilize

After 2032, we expect Betolar's growth to be saturated to 2.5% and profitability to normalize to a rate that reflects perfect competition in the terminal (ROCE % is roughly WACC %). In practice, however, the company's market is not saturated at this stage, but we feel investors should not even try to look further because events in this time window only have limited importance for investors who invest in Betolar now considering the typical investment horizon. On the other hand, survival of the present form of Betolar (i.e. successful commercialization) for more than a decade is not a given either.

### Option schemes increase the number of shares

Betolar has 4 option schemes (Optiot 2019, Optiot 2020, and Optiot 2021 management shareholding program). The subscription prices for the options are EUR 0.64-1.31 per share depending on the scheme and their subscription periods expire at the end of February 2027 in the management shareholding program and in other schemes at the end of 2030. The total size of the stock option schemes is approximately 1.5 million shares, which corresponds to an increase of about 7% compared to the current number of shares in the company. We consider the size of the stock option schemes reasonable relative to the nature of the company's business. We note, however, that further commitment of key personnel may still be necessary, and thus further dilution may occur in coming years.

As the subscription price of the stock options is well below the share price, we expect that the options will be converted into shares when they expire. As a result, Betolar's share capital grows by 7% in our estimates at the end of the decade and its equity strengthens slightly.

# Income statement

| Income statement | 2020 | 2021 | H1'22 | H2'22e | 2022e | 2023e | 2024e | 2025e |
|---|---|---|---|---|---|---|---|---|
| **Revenue** | **0,0** | **0,0** | **0,0** | **0,3** | **0,3** | **5,3** | **27,0** | **52,5** |
| Konserni | 0,0 | 0,0 | 0,0 | 0,3 | 0,3 | 5,3 | 27,0 | 52,5 |
| **EBITDA** | **-1,1** | **-3,2** | **-4,6** | **-5,9** | **-10,5** | **-12,7** | **-11,1** | **-5,4** |
| Depreciation | -0,3 | -0,7 | -0,4 | -0,5 | -0,9 | -1,3 | -1,3 | -1,8 |
| **EBIT (excl. NRI)** | **-1,4** | **-3,9** | **-5,0** | **-6,4** | **-11,4** | **-13,9** | **-12,3** | **-7,2** |
| **EBIT** | **-1,4** | **-3,9** | **-5,0** | **-6,4** | **-11,4** | **-13,9** | **-12,3** | **-7,2** |
| Konserni | -1,4 | -3,9 | -5,0 | -6,4 | -11,4 | -13,9 | -12,3 | -7,2 |
| Share of profits in assoc. compan. | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| Net financial items | 0,0 | -3,5 | -0,4 | -0,2 | -0,6 | -0,2 | -0,4 | -1,0 |
| **PTP** | **-1,4** | **-7,3** | **-5,4** | **-6,6** | **-12,0** | **-14,1** | **-12,7** | **-8,2** |
| Taxes | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| Minority interest | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| **Net earnings** | **-1,4** | **-7,3** | **-5,4** | **-6,6** | **-12,0** | **-14,1** | **-12,7** | **-8,2** |
| **EPS (adj.)** | **-0,07** | **-0,38** | **-0,28** | **-0,34** | **-0,62** | **-0,72** | **-0,65** | **-0,42** |
| **EPS (rep.)** | **-0,07** | **-0,38** | **-0,28** | **-0,34** | **-0,62** | **-0,72** | **-0,65** | **-0,42** |

Lähde: Inderes, number of shares in IPO is set tonumber of shares in 2020

# Balance sheet

| Assets | 2020 | 2021 | 2022e | 2023e | 2024e |
|---|---|---|---|---|---|
| **Non-current assets** | **1,0** | **2,2** | **4,3** | **6,4** | **9,2** |
| Goodwill | 0,0 | 0,1 | 0,1 | 0,1 | 0,1 |
| Intangible assets | 0,9 | 1,9 | 4,0 | 6,1 | 8,9 |
| Tangible assets | 0,1 | 0,2 | 0,2 | 0,2 | 0,2 |
| Associated companies | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| Other investments | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| Other non-current assets | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| Deferred tax assets | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| **Current assets** | **0,8** | **38,0** | **25,3** | **14,3** | **8,8** |
| Inventories | 0,0 | 0,0 | 0,0 | 0,3 | 1,5 |
| Other current assets | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| Receivables | 0,2 | 0,6 | 0,2 | 0,3 | 1,9 |
| Cash and equivalents | 0,6 | 37,4 | 25,2 | 13,7 | 5,4 |
| **Balance sheet total** | **1,8** | **40,2** | **29,7** | **20,7** | **18,0** |

Source: Inderes

| Liabilities & equity | 2020 | 2021 | 2022e | 2023e | 2024e |
|---|---|---|---|---|---|
| **Equity** | **1,4** | **38,4** | **26,4** | **12,3** | **-0,4** |
| Share capital | 0,0 | 0,1 | 0,1 | 0,1 | 0,1 |
| Retained earnings | -2,3 | -9,6 | -21,7 | -35,7 | -48,5 |
| Hybrid bonds | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| Revaluation reserve | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| Other equity | 3,7 | 48,0 | 48,0 | 48,0 | 48,0 |
| Minorities | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| **Non-current liabilities** | **0,0** | **0,4** | **2,5** | **4,0** | **10,3** |
| Deferred tax liabilities | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| Provisions | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| Long term debt | 0,0 | 0,4 | 2,5 | 4,0 | 10,3 |
| Convertibles | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| Other long term liabilities | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| **Current liabilities** | **0,4** | **1,4** | **0,8** | **4,4** | **8,1** |
| Short term debt | 0,0 | 0,0 | 0,0 | 3,5 | 6,2 |
| Payables | 0,4 | 0,8 | 0,2 | 0,3 | 1,4 |
| Other current liabilities | 0,0 | 0,6 | 0,6 | 0,6 | 0,6 |
| **Balance sheet total** | **1,8** | **40,2** | **29,7** | **20,7** | **18,0** |

# Valuation and recommendation 1/5

### Valuation relies on uncertain future potential

We believe that Betolar's medium-term equity story is based on a breakthrough of the Geoprime concept, first in Europe and selected Asian countries, and then globally. We feel the window is now open as the market for more environmentally friendly concrete is emerging and no company or technology has achieved a clear bridgehead role in this sub-segment of the concrete market. Betolar also currently has a good financial situation, which enables it to take advantage of this opportune moment. The opportunity should not, however, be missed, as the risk of the breakthrough being prolonged is tighter competition and/or a weakening of the company's own investment opportunities. We suspect the company's chances of success will also weaken in the long term if Geoprime does not achieve a breakthrough in the next few years.

In our opinion, it is essential in Betolar's valuation to assess the value creation potential of its business, its likelihood of achieving the potential and the market's readiness to price this in the share. Betolar's valuation, and especially accepted market pricing, is and will, in our opinion, be sensitive to the market situation, as investors' readiness to price companies through long-term potential can vary significantly, depending on, e.g., interest rate levels and investors' general willingness to take risks. With regard to the latter, the situation has also turned clearly more cautious in the market over the last year.

### Scenarios vary from sky-high to the doldrums

If Betolar's Geoprime concept makes a successful breakthrough in Europe and in certain Asian countries, and the license-based business model works, the company's growth outlook would both strengthen and be confirmed. We estimate that this would create significant shareholder value over the next few years compared to the current market cap of some EUR 55 million, even if the earnings development and cash flows would not turn positive even in the medium term. If growth acceleration is successful, investors would begin to emphasize the company's scalable growth potential more, which in turn would make Betolar more valuable.

Similarly, in a negative scenario where commercialization would fail for one reason or another or would be very slow, the risk of significant capital destruction would be genuine, as the company has no fixed assets or other solid support for valuation. In addition, in a weak scenario, covering additional financing needs would result in a high dilution risk for shareholders. Therefore, the range of possible scenarios is very wide.

### Return consists of changes in value

Betolar will be a cash consuming growth company for a long time, so the return on the share will consist of changes in the value of the share in the foreseeable future and no dividends are expected. The loan terms of the Climate Fund also prohibit dividend payment before the loan is repaid. Thus, Betolar is only suited for the portfolio of growth investors that tolerate high-risk and are patient.

| Valuation | 2022e | 2023e | 2024e |
|---|---|---|---|
| Share price | 2,86 | 2,86 | 2,86 |
| Number of shares, millions | 19,5 | 19,5 | 19,5 |
| Market cap | 56 | 56 | 56 |
| EV | 33 | 50 | 67 |
| P/E (adj.) | neg. | neg. | neg. |
| P/E | neg. | neg. | neg. |
| P/FCF | neg. | neg. | neg. |
| P/B | 2,1 | 4,5 | neg. |
| P/S | >100 | 10,6 | 2,1 |
| EV/Sales | >100 | 9,5 | 2,5 |
| EV/EBITDA | neg. | neg. | neg. |
| EV/EBIT (adj.) | neg. | neg. | neg. |
| Payout ratio (%) | 0,0 % | 0,0 % | 0,0 % |
| Dividend yield-% | 0,0 % | 0,0 % | 0,0 % |

Source: Inderes

# Valuation and recommendation 2/5

### Required return is high due to the risk level

Considering the high dispersion of Betolar's possible future scenarios, the company's risk profile is very high in the eyes of investors (cf. risk category 4). We believe that to offset the high risks (incl. the fairly positive scenario especially in the long) the required return must be set high so that the return potential is sufficient to compensate for the risk. In addition to the DCF model, we apply the required return in Betolar's valuation when assessing the current value of the company's potential market cap in the next few years. Betolar's valuation is also very sensitive to changes in the required return.

The required return is a subjective variable and it will change over time, driven by the company's development and external factors. In principle, we estimate that Betolar's risk level and corresponding downward pressure on the required return can be created by, e.g., growth, new commercial contracts, attractive co-operation contracts, falling interest rates, investors' increased willingness to take risks, and slower cash burn than expected. Similarly, the risk level would be raised by opposite factors, e.g., slower growth than our expectations, burning cash faster than expected, higher interest rates, and investors' willingness to take risks declining.

Considering Betolar's risk level, we have set the cost of equity to 18.8% and the weighted average cost of capital that considers the slight long-term debt leverage to 18%. We believe, these levels are in line with current market return requirements for very high-risk investment targets. The levels are roughly double that of Inderes' overall coverage (i.e. most of Nasdaq Helsinki), reflecting the share's risk profile that is well above that of an average listed company. As Betolar's valuation is very sensitive to changes in the required return, we also present a sensitivity analysis for changes in the required return in the different scenarios for our DCF scenarios. This will allow investors to assess different estimate and required return scenarios.

### The valuation is challenging in the short term...

Due to Betolar's early development phase, net sales-based multiples do not provide support for the current and next year. Betolar's 2023 EV/S ratio is 9x, which we consider to be a high level in absolute terms at this stage despite the company's high market potential and scalable business model. Even if the company would grow as we expect, in absolute terms, net sales will still be so low in 2023 that we do not believe that uncertainties concerning a global breakthrough have significantly decreased. Betolar's 2023 net sales multiple is also about 200% higher than that of the peer group consisting of the same type of companies, which describes the particular challenge of short-term pricing. Thus, short-term multiples indicate the challenging pricing of the share relative to short-term growth even if the metrics does not take into account different development phases of the companies.

**Estimated future valuation ranges,**
2024e and 2026e

| 2024e, MEUR | Bear | Estimate | Bull |
|---|---|---|---|
| Net sales | 13,5 | 27,0 | 40,5 |
| EV/S, LTM | 3 | 4 | 5 |
| EV/S, NTM | x | 2,1 | x |
| EV | 41 | 108 | 203 |
| Net debt | 11 | 11 | 11 |
| MCAP | 29 | 97 | 191 |
| Per share | 1,5 | 5,0 | 9,8 |
| **Discounted to present value** | **1,1** | **3,5** | **6,9** |

| 2026e, MEUR | Bear | Estimate | Target |
|---|---|---|---|
| Net sales | 45 | 90 | 200 |
| EV/S, LTM | 2 | 3 | 4 |
| EV/S, NTM | x | 1,9 | x |
| EV | 90 | 271 | 800 |
| Net debt | 34 | 34 | 34 |
| MCAP | 57 | 237 | 766 |
| Per share | 2,9 | 12,1 | 38,3 |
| **Discounted to present value** | **1,5** | **6,1** | **19,2** |

# Valuation and recommendation 3/5

### ..but if growth materializes. the medium-term indication is more positive

In addition, we made three scenarios using 2024 and 2026 net sales. The neutral scenarios are in line with our estimates. The 2024 positive scenario exceeds our estimates by 50% and the negative scenario is 50% below our estimates. We believe that with 2024 net sales the acceptable EV/S ratio could be 3x-5x, considering the development phase of the company. The accepted valuation is based on the company's business model and acceptable levels considering the development phase, and also partly on the current valuation of the peers. This resulted in a EUR 3.5 present value for Betolar's share in our estimate scenario with our required return (range EUR 1.1-6.9). Thus, the valuation picture looks somewhat more attractive looking into 2024 than in the short term, but the estimate risks are also higher in this scenario.

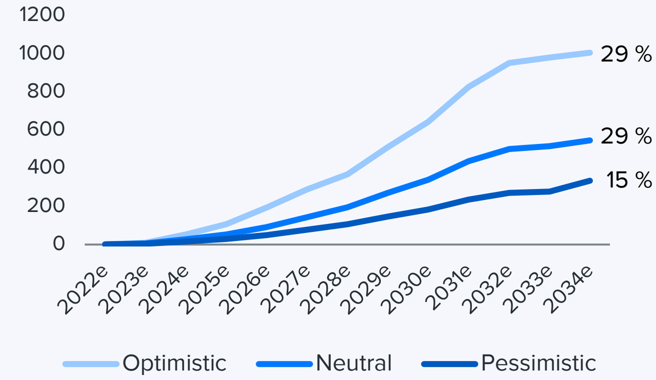
In an examination based on 2026, the neutral scenario is in line with our estimates. The positive scenario reflects Betolar's target level, while the negative is 50% below our estimates. We believe that with 2026 net sales the acceptable EV/S ratio could be 2x-4x, considering the development phase of the company, and on the other hand the clearly higher estimate risks than for 2024. This resulted in a EUR 6.1 present value for Betolar's share in our estimate scenario with our required return. The 2026 scenario thus gives a more positive picture of the valuation, but naturally the dispersion between the different scenarios is huge.

The 2024 and 2026 scenarios also expect Betolar to receive additional funding at its current share price, which is not a given either. Thus we consider it justified to include a slight safety margin in the values of a neutral and positive scenario. In addition, the 2024 and 2026 scenarios do not consider the dilution caused by outstanding options. If neutral and positive 2024 and 2026 scenarios materialize, we expect that the values of the options would be clearly positive. Based on 2032 targets, we do not believe investors should gauge the expected return at this stage due to the lack of predictability.

### DCF estimates still very rough at this stage

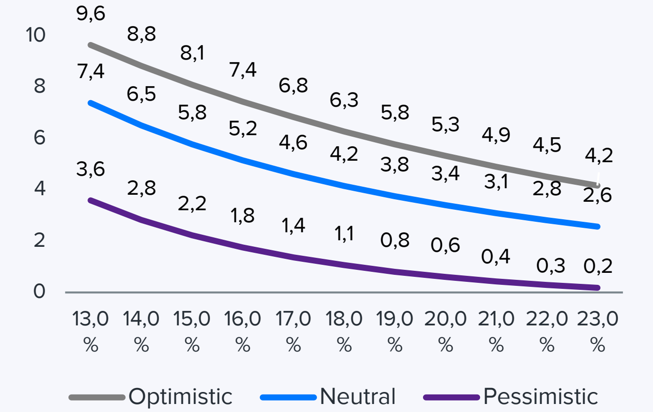
In addition, the DCF model offers a maximum for the accepted valuation based on the company's long-term potential. However, at the current development stage the model's assumptions contain significant uncertainty and its cash flows focus on a time a decade or so down the road. Thus, we feel it does not form a clear supporting point for short-term valuation and the short term is driven mostly by the ratio between the company's growth rate and growth investments, as well as building of future growth potential through new commercial agreements.

**EBIT and Revenue in DCF-scenarios and EBIT-% in 2032**




**Impact of WACC on DCF valuation**

EUR per share, WACC-%



# Valuation and recommendation 4/5

## Number of the shares is likely to increase

We determine the DCF model with different scenarios, which gives an indication of the business development assumptions of the current valuation level. We point out, however, that our DCF model is based on the company's current number of shares, although in all our DCF scenarios we expect that the company will need additional equity financing to carry out the growth investments required by our estimates (i.e. we expect the number of shares to increase). The increase in the number of shares can also be significant if the financing needs are within our EUR 25-35 million estimate range and the price is at around the current share price. At this point we can not estimate form and cost of required financing, thus our mode is based on the company’s current number of the shares.

We therefore believe that a certain discount must be applied to the DCF value until the visibility of the divisor improves. We have used a sensitivity analysis to outline the required capital and potential increase in the number of shares with different share prices. Options have not been considered in the number of shares in the DCF model either but we consider exercising them likely in the neutral and positive scenarios. The options would cause about a 7% drop in the value of the model.

## DCF gives slightly positive indication about pricing

The neutral scenario of the DCF model is in line with our current estimates, which we describe in more detail in the Estimates section of this report. The creation of the required return is explained at the beginning of this section. The equity value of Betolar under our DCF model in the neutral scenario is some EUR 80 million or around EUR 4 per share. We feel that in light of the neutral scenario, Betolar's share is currently not outrageously cheap given the tolerances of the model and the likely growth pressure in the number of shares (discount to the share price about 40 %).

In the optimistic scenario, Betolar will achieve its 2026 and 2032 targets and thereafter the business develops in line with our neutral scenario. In this scenario, Betolar's value per share is EUR 4-10 with base case of EUR 6. This scenario requires rapid market formation and Betolar's success in achieving a market leader position. The DCF value of the optimistic scenario gives a similar picture of the share's potential compared to the longer-term multiple-based methods, even if the company's share capital would increase in the coming years.

In the pessimistic scenario, we have cut Betolar's net sales by about 50 % and annual estimates by roughly similarly over the entire estimate horizon. In the scenario, net sales reach EUR X270million in 2032 and EBIT- % 15 %. (terminal 6 %) The value per share will then be in the range of EUR 0.1-3.6 with base case of EUR 1.1.  In the pessimistic scenario, market creation would be slower than in our neutral scenario and Betolar’s market share would be quite limited despite investments. The pessimistic scenario would probably also require more additional capital and/or more capitalization rounds than our neutral scenario.

### Impact of potentially raised equity and share price on number of new shares

Increase in number of shares-%

| Share price (EUR) | Raised equity (MEUR) | | | | |
|---|---|---|---|---|---|
| | 20 | 25 | 30 | 35 | 40 |
| 1.50 | *68 %* | *85 %* | *102 %* | *120 %* | *137 %* |
| 2.00 | *51 %* | *64 %* | *77 %* | *90 %* | *102 %* |
| 2.50 | *41 %* | *51 %* | *61 %* | *72 %* | *82 %* |
| 3.00 | *34 %* | *43 %* | *51 %* | *60 %* | *68 %* |
| 3.50 | *29 %* | *37 %* | *44 %* | *51 %* | *59 %* |
| 4.00 | *26 %* | *32 %* | *38 %* | *45 %* | *51 %* |
| 4,50 | *23 %* | *28 %* | *34 %* | *40 %* | *46 %* |
| 5.00 | *20 %* | *26 %* | *31 %* | *36 %* | *41 %* |
| 5.50 | *19 %* | *23 %* | *28 %* | *33 %* | *37 %* |

# Valuation and recommendation 5/5

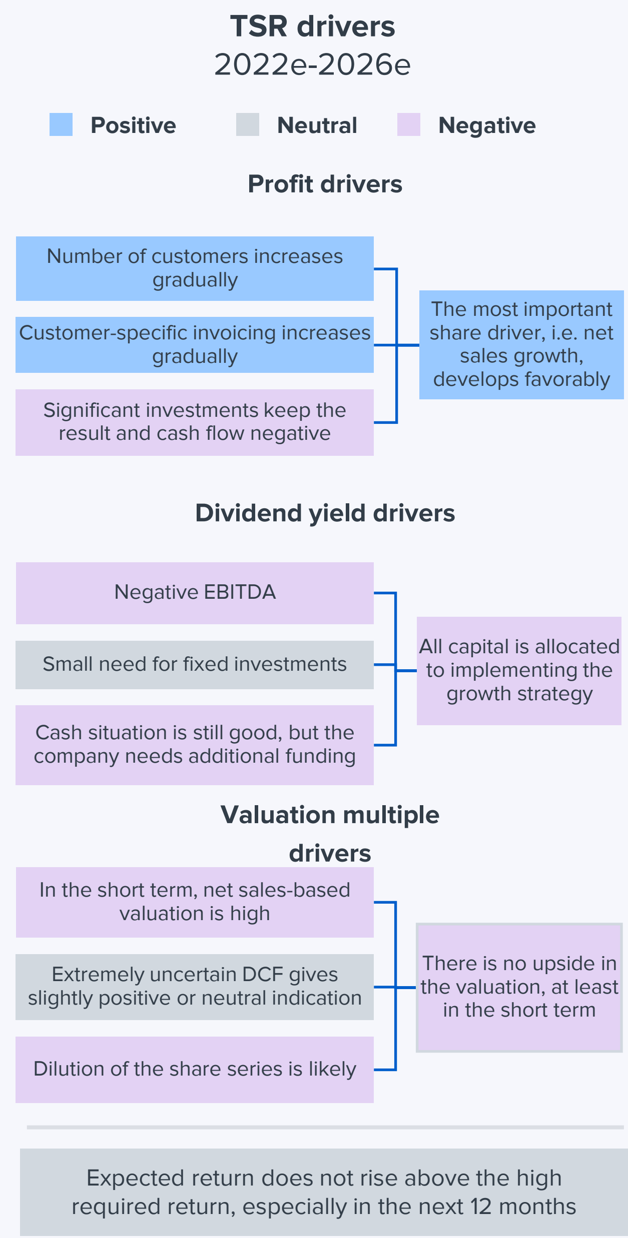
We emphasize, however that the pessimistic scenario is not the bottom level but even a weaker scenario can be drawn up for the company where Betolar's commercialization would fail and/or the company would try to stop breaking into the market by itself. In practice, we believe this scenario would lead to the same conclusion as the pessimistic scenario, namely a substantial destruction of investors' capital.

### Valuation summary

Betolar's valuation must be built on exceptionally uncertain assumptions, even if we can determine the correct magnitude with the help of peers and the DCF model. In our view, the fair value of Betolar's share with current assumptions is around EUR 2-4. At the lower end of the range, we believe that the market would give a very low probability for Betolar being successful in a commercial breakthrough and building a scalable AI-based business model. However, even at the lower end the share has no support levels, so there is a risk of a substantial loss of capital, even if we believe the expected return close to the lower end of the range is rather good compared to the risks in light of current information. On the other hand, at the top end of the range expectations are higher and we believe that the return/risk ratio would be negative, at least in the short term.

We feel that the stock market is currently rather skeptical about Betolar's financial targets and that the expectation of them being reached is quite low. In our opinion, it is not unreasonable to require concrete proof from the company considering its current development stage and the scale of the objectives. On the other hand, we believe the stock market gives a reasonable probability for the commercialization of the company's business being successful and Betolar turning profitable.

We find Betolar to be at a very interesting stage, as the company is working to transform from a loss-making development company to a global growth company that addresses a major problem in the coming years. If the scenario used in our estimates is realized, we feel it is worth taking part in the story, assuming that the operating environment on the financial market is rather normal both in terms of availability of additional funding and required returns. We do, however, believe that investors should demand a considerable growth potential to bear the significant risk and uncertainty, as a possible failure would depress the share price considerably. At the moment, we feel the risks are still too great to rely on the potential, so we start covering Betolar with Reduce recommendation and EUR 3.0 target price.




Source: Inderes

# Investment profile

1. **Innovative material technology at the beginning the commercialization**

2. **Wide range of potential side streams**

3. **Scalable business model if AI development is successful**

4. **Large TAM**

5. **Strong growth appetite and financial targets several years ahead**

## Potential

- Regulation and consumer trends drive demand for green concrete
- Geoprime enables same quality as the standard concrete
- Geoprime is easy concept to take into use as large CAPEX is not required
- Business model can become scalable and TAM is very large
- Technology seems to be competitive

## Risks

- The industry is very conservative, which may delay breakthrough of novel technologies
- Competitive emerging technologies
- Wrong timing of growth investments or weak demand could force the company to conduct expensive financing arrangements (incl. dilution)
- Business is still relatively manual and scalability will be reached only within several years

Lähde: Inderes

# Valuation table

| Valuation | 2020 | 2021 | 2022e | 2023e | 2024e | 2025e |
|---|---|---|---|---|---|---|
| Share price | 5,74 | 6,30 | 2,86 | 2,86 | 2,86 | 2,86 |
| Number of shares, millions | 19,4 | 19,4 | 19,5 | 19,5 | 19,5 | 19,5 |
| Market cap | 112 | 122 | 56 | 56 | 56 | 56 |
| EV | 111 | 86 | 33 | 50 | 67 | 81 |
| P/E (adj.) | neg. | neg. | neg. | neg. | neg. | neg. |
| P/E | neg. | neg. | neg. | neg. | neg. | neg. |
| P/FCF | neg. | neg. | neg. | neg. | neg. | neg. |
| P/B | 79,0 | 3,2 | 2,1 | 4,5 | neg. | neg. |
| P/S | >100 | >100 | >100 | 10,6 | 2,1 | 1,1 |
| EV/Sales | >100 | >100 | >100 | 9,5 | 2,5 | 1,5 |
| EV/EBITDA | neg. | neg. | neg. | neg. | neg. | neg. |
| EV/EBIT (adj.) | neg. | neg. | neg. | neg. | neg. | neg. |
| Payout ratio (%) | 0,0 % | 0,0 % | 0,0 % | 0,0 % | 0,0 % | 0,0 % |
| Dividend yield-% | 0,0 % | 0,0 % | 0,0 % | 0,0 % | 0,0 % | 0,0 % |

Source: Inderes

# Peer group valuation

| Peer group valuation | Market cap | EV | LV:n kasvu | | EV/S | | P/B |
|---|---|---|---|---|---|---|---|
| **Company** | **MEUR** | **MEUR** | **2022e** | **2023e** | **2022e** | **2023e** | **2022e** |
| Spinnova | 206 | 111 | 191 % | 113 % | 1,6 | 1,9 | 2,2 |
| Bioretec | 21 | 18 | | 17 % | 5,1 | 17,5 | 21,0 |
| Aiforia | 81 | 52 | 25 % | 80 % | 11,5 | 2,6 | 3,1 |
| Renewcell | 190 | 231 | 1192 % | 606 % | 3,9 | 2,8 | 4,1 |
| Hoffman Green Cement | 120 | 103 | | 422 % | 8,2 | 1,6 | 1,7 |
| **Betolar (Inderes)** | **56** | **33** | **2900 %** | **1650 %** | **110** | **9,5** | **2,1** |
| **Average** | | | **4,7** | **2,5** | **6,1** | **5,3** | **6,4** |
| **Median** | | | **1,9** | **1,1** | **5,1** | **2,6** | **3,1** |
| ***Diff-% to median*** | | | ***1418 %*** | ***1360 %*** | ***2078 %*** | ***259 %*** | ***-32 %*** |

Source: Refinitiv / Inderes

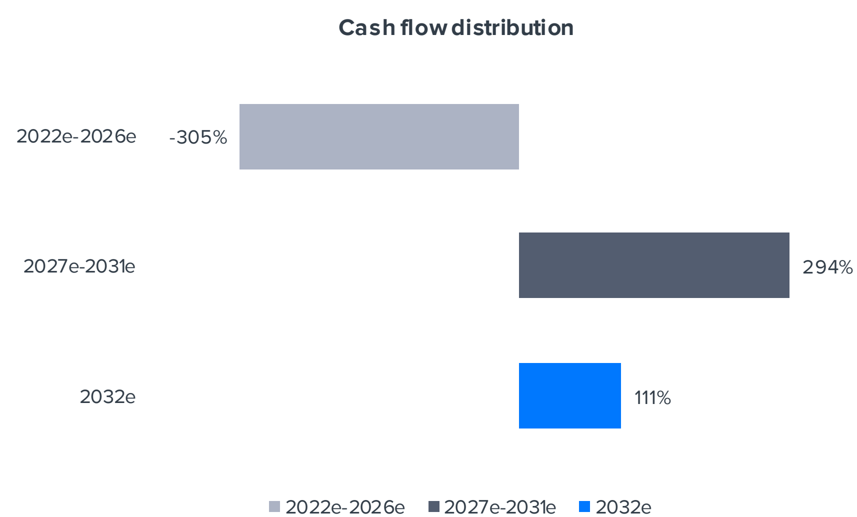
# DCF calculation

| DCF model | 2021 | 2022e | 2023e | 2024e | 2025e | 2026e | 2027e | 2028e | 2029e | 2030e | 2031e | 2032e | 2033e | TERM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Revenue growth-% | 67 % | 2900 % | 1650 % | 414 % | 94 % | 72 % | 58 % | 36 % | 38 % | 26 % | 29 % | 14 % | 3 % | 3 % |
| EBIT-% | -38590 % | -3808 % | -265 % | -46 % | -14 % | 0 % | 3 % | 11 % | 18 % | 23 % | 27 % | 27 % | 6 % | 6 % |
| **EBIT (operating profit)** | **-3,9** | **-11,4** | **-13,9** | **-12,3** | **-7,2** | **0,0** | **4,3** | **21,0** | **48,6** | **79,5** | **115,9** | **135,3** | **30,9** | |
| + Depreciation | 0,7 | 0,9 | 1,3 | 1,3 | 1,8 | 2,6 | 3,3 | 4,0 | 4,8 | 5,7 | 6,5 | 7,6 | 8,9 | |
| - Paid taxes | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | -7,9 | -23,1 | -27,0 | -6,1 | |
| - Tax, financial expenses | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | -0,1 | 0,0 | 0,0 | 0,0 | |
| + Tax, financial income | 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 | |
| - Change in working capital | 0,5 | -0,1 | -0,3 | -1,7 | -2,2 | -3,5 | -5,2 | -4,1 | -6,0 | -5,3 | -7,2 | -4,6 | -1,2 | |
| **Operating cash flow** | **-2,6** | **-10,7** | **-13,0** | **-12,8** | **-7,6** | **-0,9** | **2,4** | **20,9** | **47,4** | **72,0** | **92,1** | **111** | **32,4** | |
| + Change in other long-term liabilities | 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 | |
| - Gross CAPEX | -1,9 | -3,1 | -3,4 | -4,1 | -5,6 | -6,1 | -7,1 | -8,1 | -9,1 | -10,1 | -12,1 | -14,1 | -12,1 | |
| **Free operating cash flow** | **-4,5** | **-13,7** | **-16,3** | **-16,8** | **-13,1** | **-6,9** | **-4,7** | **12,9** | **38,4** | **61,9** | **80,0** | **97,2** | **20,4** | |
| +/- Other | 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 | |
| FCFF | -4,5 | -13,7 | -16,3 | -16,8 | -13,1 | -6,9 | -4,7 | 12,9 | 38,4 | 61,9 | 80,0 | 97,2 | 20,4 | 24,0 |
| **Discounted FCFF** | | **-13,3** | **-13,5** | **-11,8** | **-7,8** | **-3,5** | **-2,0** | **4,6** | **11,8** | **16,1** | **17,6** | **18,1** | **3,2** | **3,2** |
| Sum of FCFF present value | | 44,1 | 57,5 | 70,9 | 82,7 | 90,5 | 94,0 | 96,0 | 91,3 | 79,6 | 63,5 | 45,9 | 27,8 | 24,5 |

| | |
|---|---|
| **Enterprise value DCF** | **44,1** |
| - Interesting bearing debt | -0,4 |
| + Cash and cash equivalents | 37,4 |
| -Minorities | 0,0 |
| -Dividend/capital return | 0,0 |
| **Equity value DCF** | **81,1** |
| **Equity value DCF per share** | **4,2** |

| Wacc | |
|---|---|
| Tax-% (WACC) | 20,0 % |
| Target debt ratio (D/(D+E) | 5,0 % |
| Cost of debt | 4,0 % |
| Equity Beta | 3,00 |
| Market risk premium | 4,75 % |
| Liquidity premium | 2,00 % |
| Risk free interest rate | 2,5 % |
| **Cost of equity** | **18,8 %** |
| **Weighted average cost of capital (WACC)** | **18,0 %** |

Source: Inderes



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## Recommendation history (>12 mo)

| Date | Recommendation | Target price | Share price |
|---|---|---|---|
| 03/11/2022 | Reduce | 3.00 € | 2.86 € |

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