

## More than a hydrogen pioneer – deep pipeline with flagship projects

*APEX, stock market listed since 01/2023 following its reverse takeover of exceet, is already a pioneer in the young green hydrogen market. Based on its proven competence (first grid-connected 2 MW hydrogen plant in Germany) and a favorable market environment, the company is facing high demand, reflected in a project pipeline of 735 MW, of which 710 MW is for own operation. In our view, the 100 MW IPCEI project (publicly funded by EU with EUR 167m, total project capex of EUR 200m) is a decisive milestone in APEX's history. By 2027e the company targets to have commissioned >300 MW hydrogen projects, for which further financing will be required. We initiate coverage on APEX with a TP of EUR 13.90 and a Buy rating.*

### Clear path towards operator of own hydrogen plants

With its integrated business model APEX currently develops, builds, and sells or operates green hydrogen plants for various applications. However, on the back of the two major initiated projects H<sub>2</sub>ERO (100 MW) and Lubmin (up to 600 MW) APEX has a clear path towards operating its own hydrogen plants. In view of the long lead times, these projects are not expected to be P&L effective before 2027. In the transition phase, the company earns its money in its EPC business, which ensures capacity utilization and allows valuable experience and reputation gains.

### Ahead of strong growth – and further funding needs

Driven by the development and EPC business, we forecast revenues to quintuple to approximately EUR 90m in FY 2026e. Basically, we assume that APEX is profitable at each project. However, due to the ongoing ramp-up and still some inefficiencies in the order processing, we expect break-even on group EBITDA level of EUR 5.5m will not be reached until FY 2025e. In order to be able to realize ongoing large-scale projects such as H<sub>2</sub>ERO and Lubmin, APEX requires further external funding, which we estimate at EUR 100-180m between FY 2024e and FY 2027e.

### Valuation leads to a TP of EUR 13.90, implying an upside of >130%

We value the shares based on a blended average of EV/Sales multiples of the closest peers (Everfuel and Lhyfe) and our DCF model. Given the significant upside potential of >130% we rate the shares a Buy.

| EURm          | 2021   | 2022   | 2023e  | 2024e  | 2025e  |
|---------------|--------|--------|--------|--------|--------|
| Revenues      | 0      | 4      | 16     | 40     | 67     |
| EBITDA        | (6)    | (9)    | (9)    | (4)    | 6      |
| EBIT          | (7)    | (11)   | (11)   | (7)    | 2      |
| EPS           | (0.45) | (0.64) | (0.30) | (0.22) | (0.14) |
| EPS adj       | (0.45) | (0.64) | (0.30) | (0.22) | (0.14) |
| DPS           | -      | -      | -      | -      | -      |
| EV/EBITDA     | -      | -      | -      | -      | 42.6   |
| EV/EBIT       | -      | -      | -      | -      | -      |
| P/E adj       | -      | -      | -      | -      | -      |
| P/B           | 49.85  | -      | 3.11   | 2.12   | 1.22   |
| ROE (%)       | -      | -      | -      | -      | -      |
| Div yield (%) | -      | -      | -      | -      | -      |
| Net debt      | 5      | 11     | (41)   | (3)    | 21     |

Source: Pareto Securities

|                    |      |   |      |
|--------------------|------|---|------|
| Target price (EUR) | 13.9 | ▲ | BUY  |
| Share price (EUR)  | 5.9  | — | HOLD |
|                    |      | ▼ | SELL |

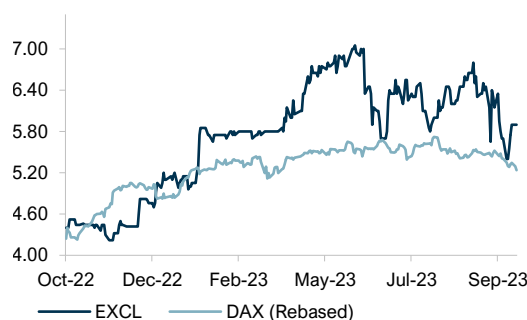
### Forecast changes

| %            | 2023e | 2024e | 2025e |
|--------------|-------|-------|-------|
| Revenues     | -     | -     | -     |
| EBITDA       | -     | -     | -     |
| EBIT adj.    | -     | -     | -     |
| EPS reported | -     | -     | -     |
| EPS adj.     | -     | -     | -     |

Source: Pareto Securities

|                             |                         |
|-----------------------------|-------------------------|
| Ticker                      | EXCL.DE, EXC GY         |
| Sector                      | Renewables & Clean Tech |
| Shares fully diluted (m)    | 36.4                    |
| Market cap (EURm)           | 215                     |
| Net debt (EURm)             | -41                     |
| Minority interests (EURm)   | 0                       |
| Enterprise value 23e (EURm) | 173                     |
| Free float (%)              | 63                      |

### Performance



Source: FactSet

Pareto Securities AS has been paid by the issuer to produce this research report. This material is considered by Pareto Securities to qualify as an acceptable minor non-monetary benefit according to the EU MIFID 2 directive.

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## Executive summary

APEX Group is a pioneer and leading player in the German green hydrogen market. The company develops and operates green hydrogen production plants and offers solutions for adjacent areas such as storage, district heating and mobility. In 2020, the company completed and commissioned Germany's first grid-connected 2 MW green hydrogen plant, in Rostock-Laage, at the company's own site, which turned out to be a reference project for future contracts.

Following the reverse takeover of the investment holding company exceet Group SCA (EXC DE), APEX is stock market listed since January 2023. While the business operations take place under the APEX brand, the stock market presence is organized under the name exceet Group. However, we understand from management, that the company will align the different brands within a short time. Following the reverse takeover, APEX received cash in the amount of EUR 87m.

APEX develops, builds, and sells or operates green hydrogen electrolysis plants for industrial use. Currently, the company is primarily active as a project developer/EPC provider for third-party projects in the scale of 10-50 MW. The third-party development business not only provides sufficient cash and earnings in the still early-stage phase of APEX's business development, but more importantly, also valuable experiences and reputation as an established hydrogen player. However, in the mid- to long-term, APEX plans to predominately operate own hydrogen plants. For this purpose, APEX is already actively developing significant capacity additions of more than 700 MW into its own portfolio.

Over the past months the company has experienced a visible increase in customer demand that resulted in firm orders. As of today, APEX has been awarded four third party projects (>25 MW) and is developing the three on-balance projects (>710 MW), Demo 3.0, H<sub>2</sub>ERO and Lubmin. Without a doubt, the IPCEI project H<sub>2</sub>ERO with a volume of 100 MW is set to be an inflection point in the company's development and blueprint for further projects. H<sub>2</sub>ERO, with an expected investment volume of EUR 200m will receive grants of EUR 167m and is expected to produce annual green hydrogen of >7,000 tons from FY 2027e onwards.

Lubmin is APEX's currently second major hydrogen project with an electrolysis capacity of up to 600 MW. In particular on the development side, there are a series of synergies with H<sub>2</sub>ERO. However, we do not expect P&L contributions from either project before FY 2027e. Furthermore, financing is not yet finally secured, and it is likely that APEX will sell at least a minority share (up to 49%) of the related project SPVs to potential partners.

Green hydrogen looks set to play a decisive role in the ongoing energy transformation which faced an acceleration following the Ukraine war and the perceived strong need to substitute Russian natural gas. Given its emission-free character and the ambitious decarbonization targets of governments across the globe, strong political support will boost the hydrogen industry. On the back of the massive subsidies and concrete renewable energy strategies (e.g. IRA, REPowerEU), the overall hydrogen industry is scaling up, which will finally increase hydrogen's competitiveness. APEX's current sales pipeline consists of >1.7 GW, an increase of c.300 MW since the beginning of the year.

Driven by the EPC business and project developments for own hydrogen production, we forecast revenues to quintuple to approximately EUR 90m in FY 2026e from estimated EUR 15.6m in FY 2023e. From FY 2027e onwards, when the own major production facilities such as H<sub>2</sub>ERO and Lubmin starts to kick-in, APEX's income stream will face a transition with a dominant share of predictable and recurring revenues and cash flows. Nevertheless, the future financial development and our estimates are subject to uncertainties, as projects may be delayed and expected orders may not be placed at all. Further, the company will need external funding, in addition to its current cash position of EUR 50.4m. We forecast the additional financing requirement to realize the projects ahead to EUR 100-180m between FY 2024e and FY 2027e.

Our TP of EUR 13.90 per share is based on a blended average of EV/Sales multiples of the closest peers (Everfuel and Lhyfe) and our DCF model, with both equal weighted. Despite the negative earnings and cash flows in the near future as a result of the intensive investments, we believe the DCF model is still best suited to account for the long-term perspectives. The multiples of the closest peers also fit well to assess APEX relative to other, listed companies with a very similar business model and strong focus on green hydrogen.

## SWOT analysis

### Strengths

APEX is more than a pioneer in the infant hydrogen market. The company's already up and running, sector-coupled 2 MW hydrogen plant at its site in Rostock-Laage is a clear competitive edge and a proof of concept, in our view. It is not only a reference project, but it also enables to gather valuable, real operational data.

Since the beginning of this year APEX is a stock market listed company and was thus able to generate enough cash to finance its initial growth steps. While we have seen several IPOs of hydrogen component suppliers in recent years, as a developer and EPC contractor APEX is rather an exception.

APEX has a unique approach with its EPC offering and the development of on-balance projects. The EPC business with the focus on viable and feasible hydrogen projects, allows the company to gather valuable experiences and consolidate its market position. Unlike most of its competitors, APEX focuses on small and medium-sized projects that have a higher probability of implementation.

The company has a clear growth path. The 735 MW strong project pipeline (thereof 100 MW prestigious IPCEI project) provides a good visibility for the near-term operational development. With the implementation of these projects within different hydrogen application areas, APEX should be well prepared to progress towards its mid-term target of >300 MW of commissioned projects.

### Weaknesses

Given the fact, that the development and EPC business do not require high technological expertise or investment costs, new competitors could emerge very quickly. However, we acknowledge that a strong balance sheet and sufficient equity is required by customers before they award long-term projects to developers.

We believe that the company's success is still highly dependent on the existing management team. Even if we do not assume unexpected departures of key persons, such a loss could have an adverse impact on the company's further development.

APEX is still at the beginning of its development and thus still loss making. Even if we foresee a sustainable profitable development with high cash generation potential, the future development is subject to high uncertainties.

### Opportunities

The timing to develop a hydrogen business model is perfect right now. In addition to the ecological motivation the very urgent need to substitute natural gas from Russia provides an investor-friendly environment with good growth prospects.

The young and fragmented hydrogen market offers consolidation potential. We therefore believe that APEX will also grow through acquisitions, primarily on the engineering side, as already shown in the case of the takeover of Plant Engineering.

APEX currently has a strong focus on the development of on-balance projects and the EPC business, with both at the beginning of the hydrogen value chain. It is also planned to own and operate hydrogen plants in the future, which will lead to a recurring income stream and higher visibility for earnings and cash flow. In addition to that we would not rule out that the company will also offer refining solutions.

### Threats

Project execution risks are always ubiquitous. Delays in the procession of orders, even if they are caused by third parties, can have harmful impacts on the company's profitability and cash flow development. Furthermore, key components such as electrolyzers or transformer stations have currently long delivery times, which can also extend project times.

It is obvious that APEX will require further funding in order to benefit from the bright market perspectives. We believe the management is open to any financing alternative. However, the lack of access to funding sources and more difficult financing conditions for early-stage companies may mean that the ambitious growth targets are not achieved. However, it must

be mentioned that the current financial resources are sufficient for the implementation of the current EPC projects, which is APEX's current bread and butter business.

The fast-growing hydrogen market is attracting many companies. In addition to hydrogen focused young companies, highly experienced developers with renewables (solar and wind) background also show interest in the market. Their main advantages are not only their financial strengths but also their track record and already established market access.

APEX's success is dependent on a rapid growth of the very young hydrogen market. At the current stage of the market development, hydrogen production and scaling up of supplier industry is almost entirely driven by government subsidies. In case of declining subsidies, the hydrogen market and customer demand would be negatively impacted.

## Company overview

Founded in 2000, APEX Group is a leading German player in the hydrogen market. The company that already focused on hydrogen electrolysis plants in 2012, is a pioneer in this field. As a developer and operator, APEX offers green hydrogen solutions for storage, district heating and mobility. In 2020, the company completed and commissioned Germany's first grid-connected green hydrogen plant, in Rostock-Laage, at the company's own site. The 2 MW hydrogen plant is fueled with green power by the company's own 11.5 MW solar park. In addition to the emission-free production and storage of hydrogen, the park also provides a hydrogen filling station as well as local hydrogen supply to nearby customers. In addition to its EPC (engineering, procurement, and construction) business, APEX has developed its own hydrogen storage technology, installed in a standard 20 feet container. With currently 90 employees APEX focuses on industrial scale hydrogen plants up to a size of 1 GW.

### APEX's showcase hydrogen park – Europe's first grid-connected hydrogen plant



Source: APEX Group

## Takeover by exceet Group SCA

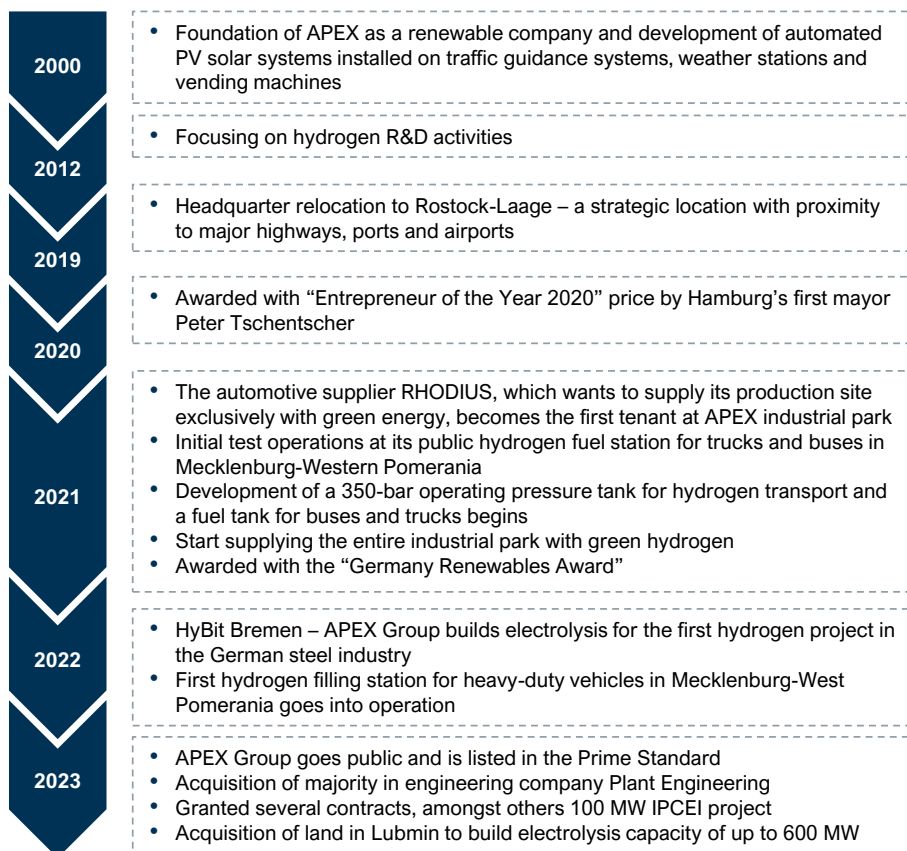
APEX is stock market listed since January 2023. The listing took place via a takeover trough the investment holding company exceet Group SCA (EXC DE). While 20.8% of the APEX shares were acquired for a cash amount of EUR 25m, the remaining 79.2% were exchanged via new exceet shares by way of a contribution in kind. Following the transaction, APEX's shareholders hold c.45% of the shares. Active Ownership Investment, which has an investment focus on renewable companies, holds 40% of the shares. As part of the transaction, APEX was valued at EUR 120m. The company received EUR 87m in cash of which EUR 17m were used for debt repayment. APEX, which acts under the public shell of exceet Group, is and will remain the sole investment of exceet. The reverse takeover was an appropriate step for APEX to realize a fast listing and achieve sufficient cash to implement its existing project pipeline. We expect the company to further professionalize its capital markets presence to increase its visibility amongst investors.

### Corporate structure



Source: APEX Group, Pareto Securities

## Company history



Source: APEX Group, Pareto Securities

## APEX's key offerings

| Offering and approach                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Target markets                                                                                                       |                                                                                                                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| <div></div> <div>3rd party project development</div> <div><ul style="list-style-type: none"><li>▪ Project origination and (pre-) feasibility studies</li><li>▪ Concept, design and integration of hydrogen plants</li><li>▪ Procurement and contract management</li><li>▪ Coordination of construction and commissioning (e.g., electrical testing and inspection)</li><li>▪ Onsite operations, service and maintenance</li><li>▪ 15 MW under development</li></ul></div> | <div></div> <div>Hydrogen production (own &amp; operate)</div> <div><ul style="list-style-type: none"><li>▪ Development of portfolio of own production plants, including owned wind and solar PV farms</li><li>▪ Production and sale of green hydrogen, heat and electricity</li><li>▪ Expansion of 2 MW pilot plant to total of 22 MW</li><li>▪ Awarded 100 MW IPCEI project H<sub>2</sub>ERO part of “Doing Hydrogen” under development</li></ul></div> | <div></div> <div>Ammonia</div>  | <div></div> <div>Chemicals</div> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <div></div> <div>Refining</div> | <div></div> <div>Steel</div>     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <div></div> <div>Mobility</div> | <div></div> <div>Grid Mix</div>  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <div></div> <div>Power</div>    | <div></div> <div>Export</div>    |

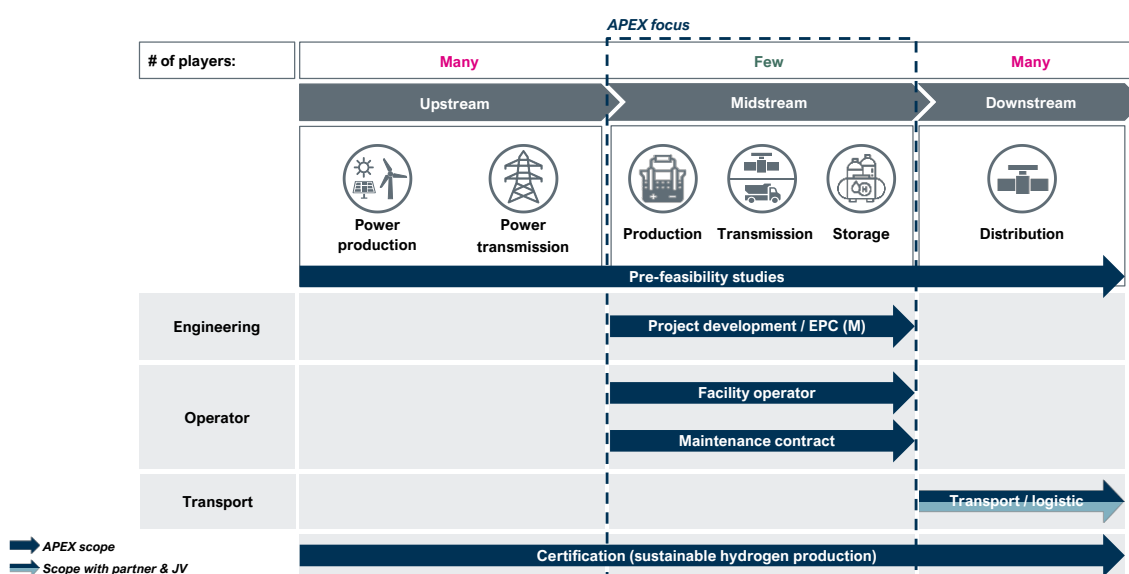
Source: APEX Group

## Integrated business model

APEX is set to become a leading company in the field of green hydrogen plants. With the construction and operation of Europe's first grid-connected hydrogen facility in 2020, the company has underpinned its ambition. The 2 MW pilot plant is not only an important reference project, on which APEX will continue to leverage, it is also a field-proven hydrogen infrastructure project that ensures local supply of electricity and heat. As an operator of a hydrogen plant, APEX was able to gather valuable operational data of an existing hydrogen plant. We view this as a real competitive edge as the number of hydrogen plants in operation are limited and only a very few competitors have achieved similar experiences. A major pillar of the company's business model is to develop, build and sell or operate green hydrogen electrolysis plants for industrial use and thus to cover the entire value chain. Across the value chain, APEX acts as a full solution provider with a strong focus on small and medium-sized plants, where we believe the competitive pressure is lower. Technology providers such as electrolyzer producers are focusing more on GW scale plants. Moreover, at the smaller projects, they even partner with companies like APEX. While the company is currently primarily active as a project developer/EPC provider in its market segment, in the mid- to long-term, we expect APEX to move further to the right along the value chain. According to Roland Berger, the EPC section of the hydrogen value chain is expected to be the largest value creator with a share of approximately 50% by 2030e, followed by the component suppliers with c.30%.

It is well known that larger plants bring cost advantages. However, as the size of the plant increases, so does its complexity, and with it the project challenges. In addition, we believe that pricing pressure is also increasing for very large projects, as the suppliers are particularly large in this area. We therefore welcome the fact, that APEX is focusing on mid-scale industrial projects with a total capacity of up to 1 GW.

### Focus on attractive midstream

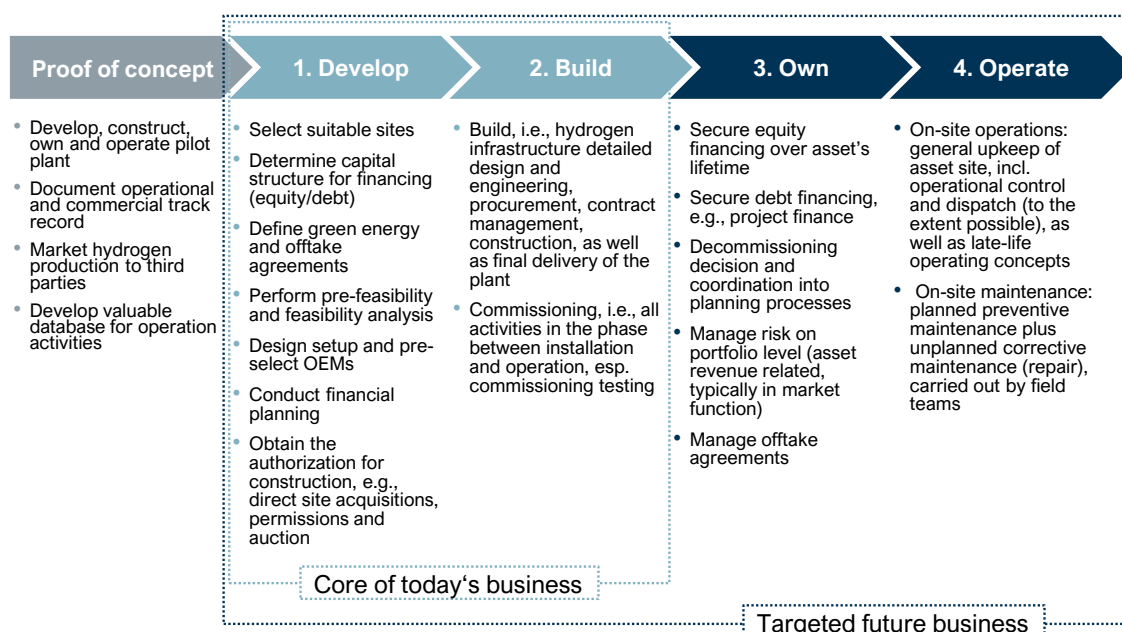


Source: APEX Group, Pareto Securities

The sufficient supply of cheap renewable energy for green hydrogen production is still a crucial point, as the power component accounts for 70-80% of the hydrogen production costs. In the type of projects targeted by APEX, hydrogen is mostly produced close to its point of consumption and does not require longer transport distances. The renewable energy fueled as feedstock for the hydrogen production is also generated in the proximity. The green hydrogen production takes place based on the electrolysis technology, of which there are currently four different variants. Depending on the intended use, hydrogen can be converted, stored, and transported in various ways. For long-distance transportation, hydrogen has to be converted into hydrogen-rich molecules with high energy density (e.g. ammonia), which is still not economical. Therefore, on-site production and local use is currently the more economical solution. For this purpose, APEX has developed together with partners a hydrogen storage tank. The PED (Pressure Equipment Directive) hydrogen storage system is installed within a standard 20-foot container, with a special seal that prevents the diffusion of hydrogen. Given the fact that hydrogen is the lightest molecule, it is also highly diffusive.

We believe that the hydrogen value chain has not yet finally matured, and APEX will have the opportunity to position itself on different levels. This can happen via cooperation, which can be seen in the recent announcement on Argo-Anleg. APEX and Argo-Anleg entered a strategic cooperation in the field of essential components for hydrogen storage, such as valves. We also believe that targeted acquisitions can also be important in order to secure know-how, capacities and market access. In mid-May APEX announced the 90% acquisition of the engineering specialist Plant Engineering for EUR 4.3m. The engineering company with experiences in turnkey solutions has already partnered with APEX at 5 MW H2-Wyhlen project and consists of a team of 16 engineering specialists.

### Integrated business model



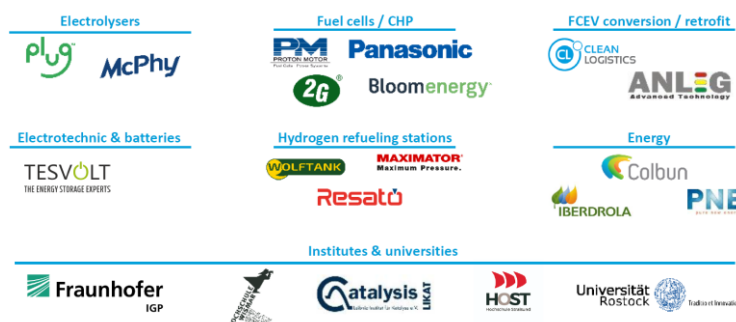
Source: APEX Group, Pareto Securities

In order to be able to offer turnkey plants for its customers, APEX relies on a broad network of partner companies. As can be seen from the overview below, the network consists of renowned, established players. One benefit of this approach is that potential financial risks are spread over several shoulders.

The promising hydrogen market is still in the early stages of development, and so are the technologies used. In particular the electrolyzer component offers significant potential for improvement with a view to technology and cost reductions. APEX's technology agnostic approach will allow the company to use the best possible electrolyzer. In addition, for different applications different electrolyzer variants are used. Consequently, we believe, it is a competitive advantage for APEX not to rely on a particular electrolyzer manufacturer of a specific technology.

Since APEX has the clear objective of operating additional plants itself in the future, it is economically advantageous to cover the entire value chain, from upstream (feedstock provider) to the downstream (off-take partners).

### APEX's strategic partners in the hydrogen sector



Source: APEX Group

## Key projects and project pipeline

### Project pipeline at a glance

|                         | HyBit Bremen         | H <sub>2</sub> -Whylen | rebus                | Heidekraut Train  | H <sub>2</sub> ERO - IPCEI | Lubmin                | Demo 3           |
|-------------------------|----------------------|------------------------|----------------------|-------------------|----------------------------|-----------------------|------------------|
| Electrolysis capacity   | 10 MW                | 5 MW                   | 10 MW                |                   | 100 MW                     | Up to 600 MW          | 10 MW            |
| H <sub>2</sub> -Storage | 600 kg               | 3,300 kg               | 2,200 kg             |                   | Direct grid feed           | Direct grid feed      | Direct grid feed |
| Production capacity     | 180 kg/h   1,500 t/y | 90 kg/h   735 t/y      | 260 kg/h   2,200 t/y | 19 kg/h   160 t/y | 880 kg/h   7,500 t/y       | 10,800 kg/h           | -                |
| Implementation          | 24 months            | 24 months              | 12 months            | 12-24 months      | 24-36 months               | 24-36 months          | 12-24 months     |
| Revenue impact          | c.EUR 5m             | c.EUR 11m              | EUR 30m for 8 years  | c.EUR 7m          | <EUR 1bn in 20 yrs         | c.EUR 1.4bn in 20 yrs | -                |
| Project type            | EPC                  | EPC                    | Construction / O&M   | EPC               | Own Operations             | Own Operations        | Own Operations   |

Hydrogen plants developed for third parties
Hydrogen plants to be owned and operated by APEX

Source: APEX Group, Pareto Securities

### APEX's personal hydrogen valley

In the field of development and implementation of hydrogen projects, APEX is a real pioneer. Already in 2020, the company developed and put into operation a grid-connected green hydrogen plant at the company's site in Rostock-Laage, for which the company had invested approximately EUR 10m. The power-to-x plant with a 2 MW electrolysis capacity was the largest grid-connected hydrogen plant in Europe at that time. The renewable power for the hydrogen plant comes from a 11.5 MW PV farm, which is in the immediate vicinity and also belongs to APEX. The showcase project includes the broad range of hydrogen use, such as storage of hydrogen and electricity, reversion of hydrogen to electricity and heat by a CHP (combined heat and power) and fuel cell, as well as the refueling for mobility applications. APEX is currently in the expansion phase of the plant by 10 MW. The green hydrogen produced here is to be supplied as part of the rebus contract.

#### APEX covers in Rostock-Laage the entire range of possible uses for hydrogen

- Production of green electricity
- Storage
- Reconversion to electricity by a combined heat and power plant and/or fuel cell
- Refueling infrastructure for buses, trucks and cars
- Trailers filled to 300 bar for transport to regional hydrogen customers
- Combination battery storage system is showcased for efficiency

Source: APEX Group, Pareto Securities

According to company information, the McPhy PEM electrolyzer has a capacity to produce up to 860kg of hydrogen per day or approximately 140 tons at 4,000 working hours per year. For the produced hydrogen, APEX has off-take agreements with Amazon and Rhodius. Assuming a hydrogen market price of EUR 6 per kg, we estimate the potential revenue volume of the site at EUR 840,000 per year. In view of that, the P&L impact of this power plant is still rather low. However, it is all the more important for gaining experiences and the gathering of important data as well as insights into the interaction of different components of hydrogen production and use. It was also important to show potential customers that APEX can implement a complex hydrogen project, which is an exception and thus a competitive edge, in view of the still very young hydrogen market. Therefore, it is not surprising that APEX is receiving requests for partnerships to develop joint hydrogen projects at the site. In the following section, we will outline the massive expansion plans for the plant.

## H<sub>2</sub>ERO will operate 100 MW electrolyzer capacity by 2027e

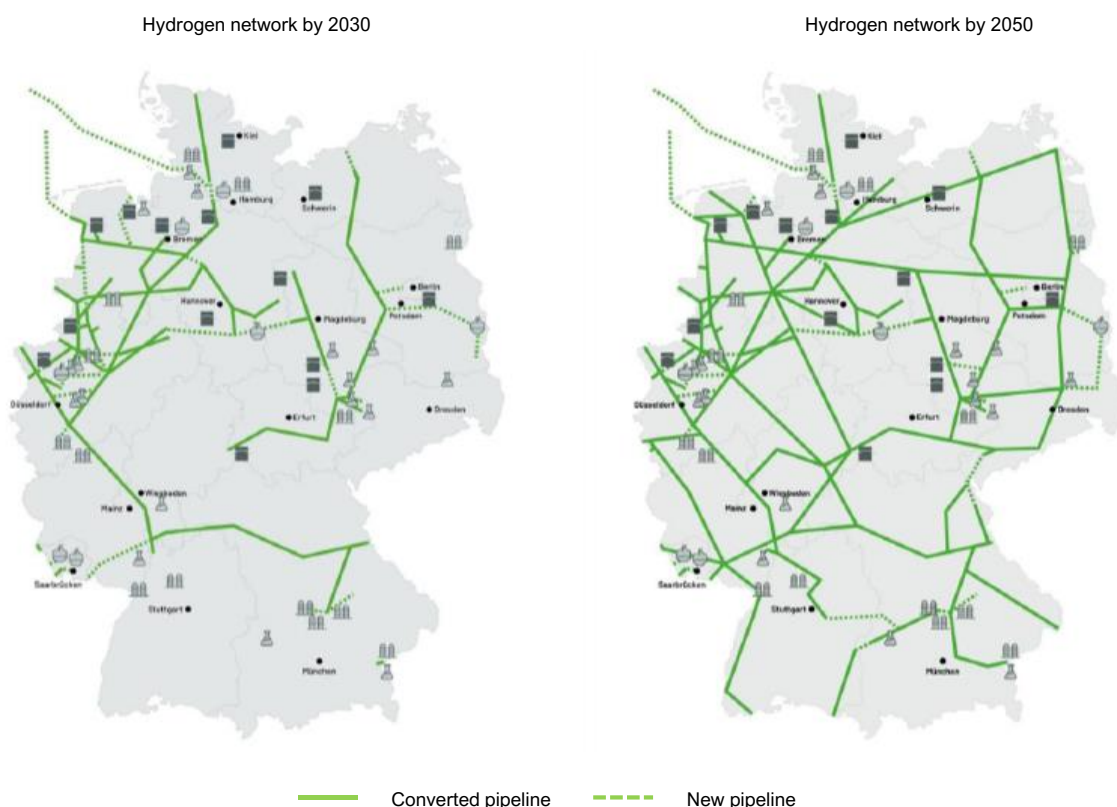
APEX's site is located in the Northeast of Germany, two hours by car from Berlin and Hamburg. The location could prove to be very strategic in view of the already existing energy infrastructure, which favors the establishment of a hydrogen industry. With an installed capacity of 9 GW PV (13% of total German PV installations) and 10.5 GW wind (18%), the Northeast region offers sufficient green power to fuel green hydrogen. Furthermore, the port of Rostock as well as the connections to gas pipelines towards East and South form good prerequisites for a possible hydrogen hub in East Germany.

In 2021, APEX received IPCEI (Important Project of Common European Interest) funding for its 100 MW flagship project H<sub>2</sub>ERO. The green hydrogen plant, which will be located on the company's own 24ha of land and subsidized in conjunction with IPCEI is expected to be operational by 2027. As usual in the renewable energy sector, H<sub>2</sub>ERO is developed within the framework of an SPV (Special Purpose Vehicle), and thus providing flexibility in financing as well as limiting risks for the group.

With an electrolyzer capacity of 100 MW the targeted annual hydrogen production is expected to be in the range of 7,000 to 11,000 tons. To put that in perspective, 7,000 tons of hydrogen are enough to fuel 1,000 buses that are in use every day. The Berliner Verkehrsbetriebe, Germany's biggest public transport company, operates 1,500 buses along a total route length of 2,119km.

The produced green hydrogen is to be transported through a hydrogen pipeline via Berlin to Leipzig/Leuna, which is approximately 350km from the production location. As part of IPCEI, the produced hydrogen has to be offered to the market in a non-discriminatory way, meaning that the sale to a single off-taker through a PPA is not allowed. More than 80% or EUR 167m of the expected investment volume of EUR 200m will be funded by the German Federal Government and the Federal State Government of Mecklenburg-West Pomerania. H<sub>2</sub>ERO is an essential part of the "doing hydrogen" initiative that has the clear focus to bring key players of the industry together to build a hydrogen hub in East Germany. By investing EUR 1.3bn until 2030, it is planned to produce 207,000 tons of hydrogen by the end of the decade. For the transportation of the hydrogen, it is planned to build a 616km pipeline. Bear in mind, that for transportation of hydrogen for distances below 2,000km the pipeline option could be the most economical form, as preparation costs (e.g. low compressor requirements) are comparatively low.

### Potential hydrogen network in Germany by 2030/2050



Source: DENA, FNB Gas 2021, Pareto Securities

## H<sub>2</sub>ERO key facts and our model assumptions

|                           |                                         |
|---------------------------|-----------------------------------------|
| Electrolysis capacity     | 100 MW                                  |
| Hydrogen storage          | Non-discriminatory,<br>direct grid feed |
| Hydrogen production       | 7,000 - 11,000 t/p.a.                   |
| CO <sub>2</sub> reduction | 90,000 t/p.a.                           |
| Entry into service        | 2027                                    |
| Investments               | EUR 200m                                |
| Funding/IPCEI grant       | EUR 167m                                |
| Equity                    | EUR 7m                                  |
| Debt                      | EUR 26m                                 |
| Hydrogen price per kg     | EUR 5.00                                |
| Annual revenue potential  | EUR 37-52m                              |
| Inflation rate            | 2.5%                                    |
| Electricity use           | 53 kWh/kg H <sub>2</sub>                |
| Electricity price         | EUR 60/MWh                              |
| Electrolyzer utilization  | 95%                                     |
| Electrolyzer efficiency   | 50%                                     |
| Electrolyzer degradation  | 1%                                      |

Source: APEX Group, Pareto Securities

In the following table we show the potential P&L and cash flow impact from the H<sub>2</sub>ERO project. We assume in the first year of the plant operation a low level of efficiency (PAsE: 25%) and utilization (PAsE: 50%), yielding in revenues of only EUR 10.6m and an EBITDA of EUR 8.8m. Once the hydrogen production is up and running and the electrolyzer has achieved a usual utilization rate of 95%, the projected revenues at a hydrogen price of EUR 5.00/kg are expected to be sustainable above EUR 40m. Given the fact, that this is an IPCEI project, a higher price at market conditions would hardly be achievable. Bear in mind, that we have only considered revenues from the production of green hydrogen and not potential additional income streams such as the sale of heat. We modelled an annual green hydrogen production in the range of 7,100 - 7,700 tons/year, which represents the lower end of the company's expectation. On the income side we considered the grants of EUR 167m on annual basis under other operating income.

On the cost side, the electricity costs will be the main item. During normal operation of the plant, we assume an annual electricity consumption of >440,000 MWh. For the electricity price we have modelled EUR 60/MWh, based on a PPA.

Over an operation period of 20 years, we calculated an aggregated EBITDA of EUR 295m and FCF of EUR 80m. More important, with the sustainable and recurring revenues and cash flows H<sub>2</sub>ERO will provide APEX a high visibility, reflecting the charm of the plant operator model. Given the fact, that H<sub>2</sub>ERO is subsidized by IPCEI provides the company a high security in a market environment, where hydrogen projects very often suffer delays due to cost competitiveness and funding uncertainties. We believe the cash flow friendly project should also attract investors who could participate with a share of up to 49%. Based on the long-term hydrogen PPA, APEX should also be able to finance the project to a certain extent with bank debt. In our model, we have assumed EUR 26m of bank debt, with an interest rate of 10%. H<sub>2</sub>ERO can be a good kickstart for the company to enter the large-scale project development and EPC business. In our view, APEX can also use H<sub>2</sub>ERO as a blueprint for future projects such as Lubmin.

Economic model of H<sub>2</sub>ERO

| (EURm)                 | 2027e  | 2028e  | 2029e  | 2030e  | 2031e  | 2032e  | 2033e  | 2034e  | 2035e  | 2036e  | 2037e  | 2038e  | 2039e  | 2040e  | 2041e  | 2042e  | 2043e  | 2044e  | 2045e  | 2046e  | Total |
|------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|
| <b>Revenues</b>        | 10.6   | 36.5   | 41.9   | 42.9   | 42.7   | 43.3   | 43.9   | 44.6   | 45.2   | 45.9   | 50.5   | 52.3   | 53.0   | 53.8   | 54.6   | 55.4   | 56.2   | 57.1   | 57.9   | 58.8   | 947   |
| Other operating income | 8.4    | 8.4    | 8.4    | 8.4    | 8.4    | 8.4    | 8.4    | 8.4    | 8.4    | 8.4    | 8.4    | 8.4    | 8.4    | 8.4    | 8.4    | 8.4    | 8.4    | 8.4    | 8.4    | 8.4    | 167   |
| Electricity costs      | (6.7)  | (24.4) | (27.9) | (28.7) | (29.6) | (30.5) | (31.4) | (32.3) | (33.3) | (34.3) | (35.4) | (36.4) | (37.5) | (38.7) | (39.8) | (41.0) | (42.3) | (43.5) | (44.8) | (46.2) | (685) |
| Maintenance            | (1.4)  | (2.6)  | (2.9)  | (3.0)  | (3.1)  | (3.1)  | (3.2)  | (3.3)  | (3.4)  | (3.5)  | (3.5)  | (3.6)  | (3.7)  | (3.8)  | (3.9)  | (4.0)  | (4.1)  | (4.2)  | (4.3)  | (4.4)  | (69)  |
| Stack replacement      |        |        |        |        |        |        |        |        |        |        | (10.0) |        |        |        |        |        |        |        |        |        | (10)  |
| Water costs            | (0.1)  | (0.2)  | (0.2)  | (0.2)  | (0.2)  | (0.2)  | (0.2)  | (0.2)  | (0.2)  | (0.2)  | (0.2)  | (0.3)  | (0.3)  | (0.3)  | (0.3)  | (0.3)  | (0.3)  | (0.3)  | (0.3)  | (0.3)  | (5)   |
| Other operating costs  | (2.0)  | (2.1)  | (2.1)  | (2.2)  | (2.2)  | (2.3)  | (2.3)  | (2.4)  | (2.4)  | (2.5)  | (2.6)  | (2.6)  | (2.7)  | (2.8)  | (2.8)  | (2.9)  | (3.0)  | (3.0)  | (3.1)  | (3.2)  | (51)  |
| <b>EBITDA</b>          | 8.8    | 15.7   | 17.1   | 17.2   | 16.0   | 15.6   | 15.1   | 14.7   | 14.2   | 13.8   | 7.1    | 17.7   | 17.2   | 16.7   | 16.1   | 15.6   | 15.0   | 14.4   | 13.7   | 13.0   | 295   |
| EBITDA margin          | 83%    | 43%    | 41%    | 40%    | 37%    | 36%    | 34%    | 33%    | 31%    | 30%    | 14%    | 34%    | 32%    | 31%    | 30%    | 28%    | 27%    | 25%    | 24%    | 22%    | 31%   |
| D&A                    | (10.0) | (10.0) | (10.0) | (10.0) | (10.0) | (10.0) | (10.0) | (10.0) | (10.0) | (10.0) | (10.0) | (10.0) | (10.0) | (10.0) | (10.0) | (10.0) | (10.0) | (10.0) | (10.0) | (10.0) | (200) |
| <b>EBIT</b>            | (1.2)  | 5.7    | 7.1    | 7.2    | 6.0    | 5.6    | 5.1    | 4.7    | 4.2    | 3.8    | (2.9)  | 7.7    | 7.2    | 6.7    | 6.1    | 5.6    | 5.0    | 4.4    | 3.7    | 3.0    | 95    |
| EBIT margin            | neg.   | 16%    | 17%    | 17%    | 14%    | 13%    | 12%    | 11%    | 9%     | 8%     | neg.   | 15%    | 14%    | 12%    | 11%    | 10%    | 9%     | 8%     | 6%     | 5%     | 10%   |
| Financial results      | (2.6)  | (2.4)  | (2.1)  | (1.8)  | (1.6)  | (1.3)  | (1.1)  | (0.8)  | (0.5)  | (0.3)  | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      | (15)  |
| <b>EBT</b>             | (3.8)  | 3.4    | 5.0    | 5.3    | 4.4    | 4.2    | 4.1    | 3.9    | 3.7    | 3.5    | (2.9)  | 7.7    | 7.2    | 6.7    | 6.1    | 5.6    | 5.0    | 4.4    | 3.7    | 3.0    | 80    |
| Tax payments           | 1.2    | (1.0)  | (1.5)  | (1.6)  | (1.3)  | (1.3)  | (1.2)  | (1.2)  | (1.1)  | (1.0)  | 0.9    | (2.3)  | (2.2)  | (2.0)  | (1.8)  | (1.7)  | (1.5)  | (1.3)  | (1.1)  | (0.9)  | (24)  |
| <b>Net income</b>      | (5.3)  | (0.0)  | 1.4    | 1.9    | 1.5    | 1.6    | 1.8    | 1.9    | 2.1    | 2.2    | (2.0)  | 5.4    | 5.0    | 4.7    | 4.3    | 3.9    | 3.5    | 3.1    | 2.6    | 2.1    | 42    |
| <b>Working capital</b> | 1.6    | 7.3    | 8.5    | 8.7    | 8.2    | 8.2    | 8.1    | 8.1    | 8.0    | 7.9    | 9.7    | 10.1   | 10.0   | 10.0   | 9.9    | 9.8    | 9.7    | 9.6    | 9.5    | 9.4    |       |
| Working capital ratio  | 15%    | 20%    | 20%    | 20%    | 19%    | 19%    | 18%    | 18%    | 18%    | 17%    | 19%    | 19%    | 19%    | 18%    | 18%    | 18%    | 17%    | 17%    | 16%    | 16%    |       |
| <b>Free cash flow</b>  | (2.6)  | (1.8)  | 4.0    | 5.2    | 5.1    | 4.7    | 4.6    | 4.4    | 4.3    | 4.2    | (2.1)  | 6.6    | 6.7    | 6.4    | 6.0    | 5.6    | 5.2    | 4.8    | 4.3    | 3.9    | 80    |

Source: APEX Group, Pareto Securities

## Lubmin – APEX drives Germany's hydrogen hub

APEX Group announced its acquisition of three strategically important plots of land in Lubmin, Germany from EWN Entsorgungswerk für Nuklearanlagen GmbH at an initial price of approximately EUR 1.7m, to build up to 600 MW of electrolyzer capacity for the green hydrogen production. Lubmin is located at the Baltic Sea near the German-Polish border. APEX will construct and operate the plants as the owner, with expected completion of the first construction stage in 2027. In the final construction phase, up to 43,000 tons of green hydrogen would be generated per annum in the plant, which is more than 5x the planned production at H<sub>2</sub>ERO. The recently acquired plots of land have a total area of around 5.2 ha, with an additional 1.1 ha reserved for APEX's further acquisition. The existing infrastructure located on the former site of the Greifswald nuclear power station provides ideal conditions for hydrogen production in the future. Several offshore wind farms in the northeast of Rügen, with a current feed-in capacity of c. 1.5 GW, offer sustainable sources of renewable energies, and the existing substation enables the connection to Germany's high-voltage transmission grid. According to our calculation, the installed offshore wind capacity of 1.5 GW is enough to produce more than 110,000 tons of green hydrogen per year.

Lubmin will be the northeast hub of the strategic pipeline project in Germany 'Flow – making hydrogen happen', which aims to transport hydrogen nationwide using the current natural gas infrastructure, and APEX is participating in as an associated partner. Consequently, demand for off-take agreements from industrial clients is likely to exist. This pipeline is considered as the most powerful project for the expansion of the green hydrogen infrastructure in Germany. Leveraging the renewable hydrogen production by the Lubmin plant, a filling station for heavy-duty trucks is to be built nearby.

The project is still in a very early stage, however, we acknowledge that with a consistent implementation and appropriate financing as well as participation of investors, the project can be realized by 2027. The timetable is similar to the H<sub>2</sub>ERO project. Yet, we do not rule out, that the Lubmin project will be operational earlier than the H<sub>2</sub>ERO project, at least the first stage.

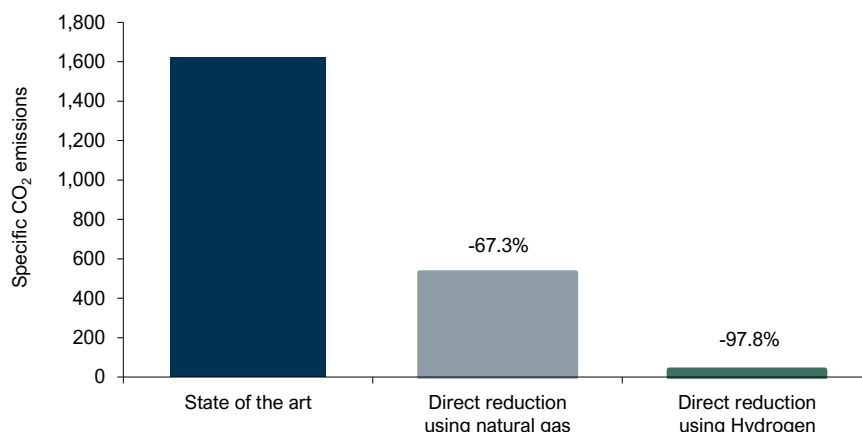
The planned investment costs of approximately EUR 200m for the first phase of the projects suggest that APEX initially plans to install an electrolysis capacity of 100 MW, which would be the same size as the H<sub>2</sub>ERO project. Taking into account a hydrogen selling price of approximately EUR 7 per kg would result in slightly better metrics as for H<sub>2</sub>ERO. As this is not a subsidized project, we believe APEX should have it easier to adapt its selling price to market conditions and enforce price increases. Assuming the same hydrogen production volume and electricity consumption as for the H<sub>2</sub>ERO project, we would estimate an aggregated EBITDA of >EUR 560m and a FCF of >EUR 300m, over an operating period of 20 years. However, unlike at H<sub>2</sub>ERO, APEX has to secure the financing of the project as no meaningful subsidies are expected.

We believe, APEX will require a funding of up to EUR 15m until the project reaches ready-to-build status, including costs for development, grid connection construction as well as for the land, which the company should be able to largely finance on its own. The total Capex of at least EUR 200m (considering a 100 MW plant in the first stage) requires an equity share of up to EUR 60m, for which APEX will likely take on a partner. From the pricing point of view, it makes sense to sell project shares as late as possible. As bank financing must be secured before construction can begin, we expect a potential equity partner to be taken on board latest at the ready-to-build status, which we foresee for H1 2024e. In our view, APEX will prefer to keep the majority stake in the project. However, we also believe that the company will act opportunistically, should there be an attractive offer for the majority of the project. As already outlined in this report, APEX's business model currently has a strong focus on the development phase of the green hydrogen value chain.

## HyBit Bremen – Decarbonize local steel plant

In July 2022, APEX was commissioned to build an electrolysis plant with a power range of 10 MW. The client is the Bremen HyBit (“Hydrogen for Bremen’s industrial transformation”), consisting of the utilities swb and EWE as well as ArcelorMittal. At the swb power plant site in Bremen-Mittelsbüren it is planned to produce green hydrogen for Arcelor Mittal’s steel site and contribute to its decarbonization. It is also planned that a portion of the produced hydrogen will be used for mobility solutions, for which APEX will provide its container storage solution. With a potential hydrogen production of 1,500 tons per year CO<sub>2</sub> savings of 21,000 tons per year are possible.

### Potential CO<sub>2</sub> savings in the steel industry (Kg/t<sub>crude steel</sub>)



Source: Fraunhofer Institute for Ceramic Technologies and Systems IKTS, Pareto Securities

The fact, that APEX was able to acquire this renowned project reflects the perception of the company at potential customers. In our view, APEX’s own hydrogen electrolysis plant as a proof of concept has also played a crucial role for the decision makers. We consider the electrolysis plant with a total investment of EUR 20m (thereof EUR 10m grant from the state of Bremen) as a lighthouse project for the German industry and in particular for the steel industry, and expect further projects based on this example. The steel procession industry is known for its large portion of global emission. According to the World Steel Association, every ton of steel produced emits on average 1.85 tons of CO<sub>2</sub>. Therefore, the steel industry is considered as one of the most hard-to-abate industries when it comes to decarbonization. We believe that we will see in the near-term future a series of these projects in the energy-intensive industries, where the decarbonization will be in the main focus, but also the substitution of natural gas. According to numbers of the Federal Ministry for Economic Affairs and Energy (BMWi) there are more than 11,000 sites in Europe (EU, Norway, Island and Liechtenstein) that are assigned to the energy-intensive category. As the HyBit example has shown, municipalities and cities are willing to support decarbonization projects, as long as there is simultaneously a locally based industry, that can absorb the produced green hydrogen via off-taker agreements. In our view, for these kind of green hydrogen projects the price competitiveness is not that important, it is more about obtaining green electricity in sufficient quantities. One further rationale to support the energy transition of these industries is the competitiveness aspect, as these industries are mostly important for maintaining of value chains and supporting them are relevant for the entire industrial locations and related industries.

Taking into account the fact, that Arcelor Mittal targets to be emission-free at its site in Bremen by mid 2030s, we believe that it is highly likely that the current capacity of 10 MW will be expanded in the future. In such a case, APEX should have good prospects to also acquire follow-up orders.

## H<sub>2</sub>-Whylen – Green hydrogen through hydropower

In October 2022 APEX received the order to commission a 5 MW electrolysis plant for Energiedienst, a subsidiary of EnBW Energie Baden-Württemberg AG. The plant will be an essential part of the living laboratory “H<sub>2</sub>-Whylen” project, so far, the largest green hydrogen plant in Southern Germany. The green electricity for the plant will be delivered by a 38.5 MW hydropower plant.

The special characteristic of the project is that it is a Power-to-Gas plant, where the produced hydrogen is expected to be used in the areas industry, mobility, and district heating. The plant has the potential to deliver approximately 12 GWh usable waste heat, which should be sufficient to supply more than 2,000 housing units, according to our calculation. EnBW has announced early April this year that it has already started the marketing process of up to 720t/year hydrogen to potential customers in South Germany, Switzerland and France. Given the fact, that this project is still in the testing phase, a further scaling up in the future cannot be ruled out. Bear in mind, that at Grenzach-Whylen Energiedienst has been already operating a 1 MW alkaline electrolyzer since 2019.

The project is expected to be finished at the end of 2024. We estimate the total revenue contribution from the project in the range of EUR 11m.

Worth mentioning in this context is also the cooperation with Plant Engineering, which was acquired by APEX in May 2023. Plant Engineering is specialized in engineering and consulting services for the energy industry with a strong expertise in the field of green hydrogen.

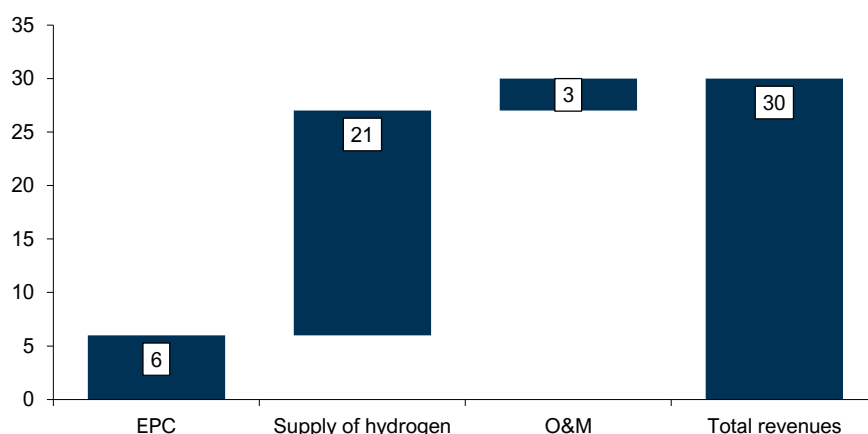
## rebus – Build and operate filling stations for 52 hydrogen busses

APEX will build two hydrogen filling stations for its customer rebus (Regionalbus Rostock GmbH). In addition, APEX has a long-term contract to operate, maintain and supply the filling station with green hydrogen.

As already outlined at the beginning of this report, the development, building and operation of hydrogen filling stations are part of the company's core competences. At its site in Rostock-Laage, APEX has commissioned the first hydrogen refueling station for heavy-duty transport in Mecklenburg-West Pomerania in October 2022. The investment costs for the filling station, at which passenger cars can also be refueled with green hydrogen, amounted to approximately EUR 5m and were financed by APEX without subsidies. APEX acted as developer for the refueling station, which is located at the company's industrial park in Rostock-Laage. The major components were delivered from partnered suppliers across Europe. Just recently, the company has announced a strategic partnership with the Dutch company Resato Hydrogen Technology. Resato will also deliver all relevant filling station components for APEX's rebus project.

According to company data, the filling station at Rostock-Laage has a daily capacity of 450 kg hydrogen, which enables the refueling of ten heavy-duty trucks, allowing a range of 350-400km each. We believe that the flagship project is of importance to APEX. It not only allows the company to gain valuable experience, but also serves as a proof of concept that makes it easier to acquire similar projects in the future.

### APEX's expected revenue stream from the rebus project over the lifetime (EURm)



Source: APEX Group, Pareto Securities

Different from the other two acquired projects, where APEX acts as an EPC provider, the company now will also operate the plant for eight years. In view of the known fuel requirement for the current 52 hydrogen busses, the filling station will provide APEX highly predictable and recurring revenues. In the press release it is stated that APEX has to supply approximately 2,200 tons of green hydrogen during the tenor, resulting in a total revenue potential of up to EUR 21m.

However, in order to provide the required green hydrogen, APEX first has to increase its electrolysis capacity at its site in Rostock-Laage from currently 2 MW to 12 MW. We estimate the investment costs for the 10 MW increase to approximately EUR 25m-28m, which can be financed by the company's own sources and additional bank debt. Considering the long-term agreement with rebus and the potential PPAs for the marketing of the produced hydrogen, the financing on project base should not be a major challenge. Furthermore, we believe the project can also attract strategic investors, who could in such a case provide the relevant equity contribution.

In the following table we have shown the potential revenue, earnings, and cash flow streams:

#### Financial model of rebus project (w/o EPC contract)

| (EURm)                  | 2024e      | 2025e      | 2026e      | 2027e      | 2028e      | 2029e      | 2030e      | 2031e      | 2032e       | 2033e       |
|-------------------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|
| <b>Revenues</b>         | <b>4.4</b> | <b>7.1</b> | <b>9.1</b> | <b>9.2</b> | <b>9.4</b> | <b>9.5</b> | <b>9.6</b> | <b>9.8</b> | <b>10.2</b> | <b>10.4</b> |
| rebus related revenues  | 2.1        | 2.7        | 2.7        | 2.8        | 2.9        | 2.9        | 3.0        | 3.1        | -           | -           |
| PPA related revenues    | 2.1        | 4.1        | 6.0        | 6.1        | 6.1        | 6.2        | 6.3        | 6.3        | 10.2        | 10.4        |
| Operation & Maintenance | 0.3        | 0.3        | 0.3        | 0.3        | 0.4        | 0.4        | 0.4        | 0.4        | -           | -           |
| Electricity costs       | (3.4)      | (4.6)      | (4.7)      | (4.9)      | (5.0)      | (5.1)      | (5.2)      | (5.4)      | (5.5)       | (5.6)       |
| Opex, Electrolyzer      | (0.4)      | (0.4)      | (0.4)      | (0.4)      | (0.5)      | (0.6)      | (0.6)      | (0.6)      | (0.6)       | (0.6)       |
| Stack replacement       |            |            |            |            |            |            |            |            |             |             |
| Water costs             | (0.1)      | (0.1)      | (0.2)      | (0.2)      | (0.2)      | (0.2)      | (0.2)      | (0.2)      | (0.2)       | (0.2)       |
| Other opex              | (0.3)      | (0.3)      | (0.3)      | (0.3)      | (0.3)      | (0.3)      | (0.3)      | (0.3)      | (0.3)       | (0.3)       |
| <b>EBITDA</b>           | <b>0.2</b> | <b>1.7</b> | <b>3.5</b> | <b>3.5</b> | <b>3.5</b> | <b>3.3</b> | <b>3.3</b> | <b>3.3</b> | <b>3.6</b>  | <b>3.6</b>  |
| EBITDA margin           | 4%         | 24%        | 38%        | 38%        | 37%        | 35%        | 34%        | 34%        | 35%         | 35%         |
| <b>Free cash flow</b>   | <b>0.5</b> | <b>1.6</b> | <b>2.9</b> | <b>2.9</b> | <b>2.9</b> | <b>2.8</b> | <b>2.8</b> | <b>2.8</b> | <b>3.0</b>  | <b>3.0</b>  |

Source: APEX Group, Pareto Securities

In general, we have assumed that the contract with rebus with expiration after eight years will not be extended. However, this is a conservative assumption, as hydrogen demand for rebus' bus fleet will also exist after the contract expiration.

Furthermore, for reasons of simplification and considering a period of only ten years, we have not factored in a stack replacement, which would usually take place after ten years in operation.

Our earnings and cash flow estimates in our model are exposed to the marketing of hydrogen via the free market, as the price for the green hydrogen to be delivered to rebus is fixed. In our model, we have assumed a free market price of EUR 10 per kg and considered an inflation rate of 2.5%. An increase/decrease of the price by EUR 1 per kg will lead to an increase/decrease of c.EUR 4m in estimated total free cash flow over the period under review.

Depending on the selling price of hydrogen for trucks and busses, the business case for hydrogen as mobility solution can be positive. Considering the fact, that a bus consumes on average 53 liters of diesel per 100km and a diesel price of EUR 1.60/liter at the gas station implies total fuel costs of EUR 84.8 per 100km. The hydrogen consumption per 100km for a bus is 8kg, which means that at a unit cost of EUR 10.6/kg hydrogen would be competitive. Current market prices for hydrogen at gas stations amount to EUR 13/kg. However, taking into account the greenhouse gas emission cost rate, in particular for the logistic industry, hydrogen can be a competitive as fuel.

## Heidekrautbahn – Hydrogen train filling station

In May 2023 APEX has won the contract in a public tender by BEBG (Barnimer Energiebeteiligungsgesellschaft mbH). The whole project involves establishing a hydrogen train filling station for the Heidekrautbahn railway line across the north of Berlin via Basdorf in the districts of Oberhavel and Barnim, which will be one of the first hydrogen-powered railway lines in Germany with trains powered 100% with green hydrogen. The construction of the filling station is scheduled to take place May - August 2024, with the test operations and approval to be completed September - December 2024. Train services are expected to start in December 2024 on the RB 27 regional train line, with approximately seven trains refueled per day.

As the general contractor for the project, APEX is responsible for the entire planning in the areas of electrical engineering, control systems and approval procedures, as well as for overseeing the construction of the installation of the filling station. APEX will also take charge of the commissioning of the filling station, including training for the driving personnel and plant/operating staff. According to APEX, it is expected to realize a total project revenue of EUR 6.9m in FY 2023e and FY 2024e, with most of the project revenues generated in FY 2024.

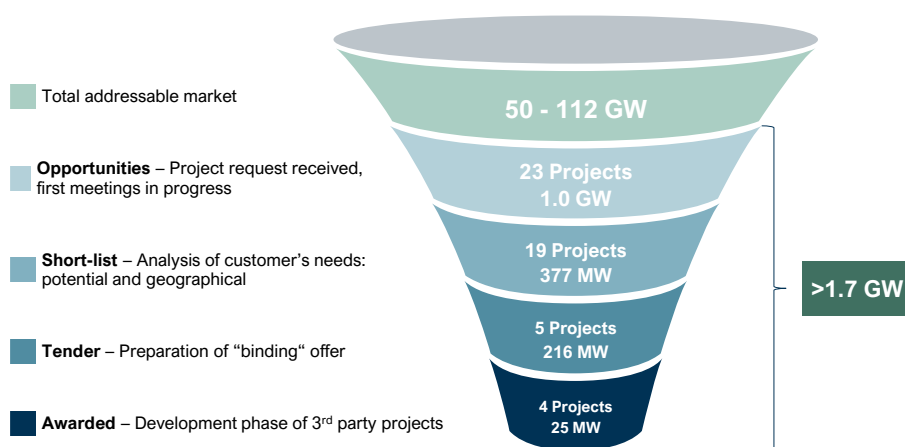
The project size of EUR 6.9m might appear low at first glance. However, we believe the project could be of strategic importance for APEX in the mid-term. The experiences in conjunction with the train filling station could be crucial for future railway projects in Germany. Deutsche Bahn has ambitious hydrogen plans for its rail fleet and sees several opportunities to implement the use of hydrogen in order to decarbonize its operations. The replacement of the aging diesel locomotives with hydrogen driven trains as well as the railroad lines without overhead are potential application areas. According to the Deutsche Bahn one third of the 33,000 km railway line in Germany is without overhead line. In Europe, this figure is almost 50%, illustrating the potential of hydrogen applications. Another important point is the greater reach of hydrogen trains. While battery driven trains are able to cover a distance of up to 100km, hydrogen driven trains have a reach of up to 800km.

## Growing project pipeline

Backed by the increasing market stimulation, APEX's order activities have gained momentum over the recent past. According to the management, the sales pipeline which was at approximately 300 MW at the end of 2022 has increased significantly to currently more than 1.7 GW, consisting in total of 50 projects. More importantly the average size of the projects in the pipeline with 34 MW is decent and should have a noticeable impact on the company's P&L. We estimate the current volume for development and EPC projects to be in the range of EUR 1m to EUR 1.5m per MW. Given the fact, that APEX is currently still focusing on the project development and EPC businesses, the earnings and cash flow development is tilted to be somewhat lumpy. With the expected increasing footprint in hydrogen plant operations, this will change by nature.

According to the company there are currently 44 projects with a size of up to 50 MW and six projects in the range of 50-100 MW. Five projects with a total size of 216 MW are currently in the tender process. Currently, APEX has four third-party development projects on hand with a total size of 25 MW. The three projects for its own operations consist of 710 MW.

### APEX's project pipeline



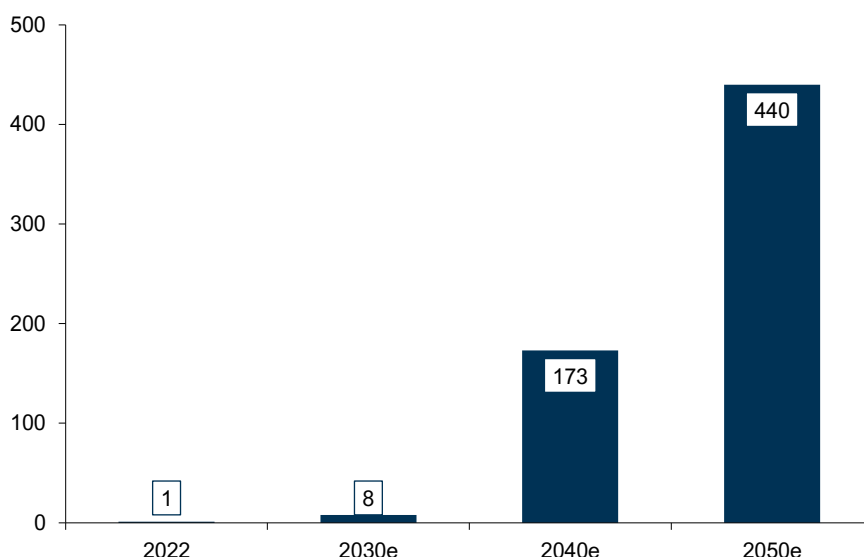
Source: APEX Group, Pareto Securities

## Market section

Given its exceptional eco-friendly properties and versatile application possibilities, green hydrogen will play a crucial role in the decarbonization of the energy industry. The energy sector is responsible for c.40% of global CO<sub>2</sub> emissions today, mainly related to fossil fuel power generation. According to a BloombergNEF report, global supply of green hydrogen is forecasted to increase from currently around 1 Mt (million tonnes) to 440 Mt in 2050, in the Net Zero Scenario (NZS) that describes an economics-led evolution of the energy economy to achieve net-zero emissions in 2050. While today hydrogen is mainly used as a basic material for oil refining and producing fertilizers, it is expected that it will account for up to 25% of the global energy demand by 2050.

The war in Ukraine acts like a fire accelerator for the transformation process of hydrogen, which was initially expected to take decades to complete, due to immature and less competitive technologies, lack of sufficient green power sources and very cheap and plethora natural gas from Russia. The need to substitute Russian natural gas and become independent in the energy supply has forced nations across the globe and particularly in Europe to invest heavily in the promotion of the hydrogen industry.

### Growth expectations on the global supply of green hydrogen in Net Zero Scenario (in MT)



Source: BloombergNEF, Pareto Securities

## Understanding hydrogen

Hydrogen is like electricity not an energy source but an energy carrier, as it has to be produced through energy processes. That means it can be produced by various energy sources like CO<sub>2</sub> intensive fossil fuels, but also by emission-free electricity gained by renewable energies sources. Therefore, the environmental friendliness of hydrogen is completely dependent on how it is produced. Hydrogen generated by renewable energy is defined as green hydrogen. In this research report, we focus exclusively on the business model of the green hydrogen. Different to its fossil- and natural-gas-based peers grey and blue hydrogen (with most of CO<sub>2</sub> produced during the process will be captured and stored), where CO<sub>2</sub> is released into the atmosphere in the production process, green hydrogen is CO<sub>2</sub>-free. Green hydrogen can be converted back to electricity and also to other energy sources, allowing a much broader and resilient energy mix with less dependency from single sources. Given its versatile application possibilities, green hydrogen will be decisive to reduce emissions towards zero in many sectors.

Hydrogen is characterized by higher gravimetric energy density (the amount of energy that can be stored relative to its weight) compared to other energy sources. On a mass basis, hydrogen contains approximately 2.5x energy of methane, and 3x energy of gasoline or diesel. 1 kg of hydrogen contains c.33 kWh of usable energy, assuming no loss on conversion, while methane only holds c.14 kWh/kg and diesel even less than c.12 kWh/kg. Due to its high energy density, hydrogen can be stored over extended period and transported in a flexible way, like conventional energy sources. This ability to store it makes hydrogen base-load capable and help to overcome disruptions and outages in the power

supply. More importantly it will contribute to making energy from wind and solar base-load capable.

#### How to measure hydrogen in different units

| Metrics to measure hydrogen |           |               |
|-----------------------------|-----------|---------------|
| 1 kg                        | 0.04 MWh  | 144 MJ        |
| 1 ton                       | 40 MWh    | 144,000 MJ    |
| 100 tons                    | 4,000 MWh | 14,400,000 MJ |

With loss on conversion electricity requirement to produce hydrogen

|      |                          |
|------|--------------------------|
| 1 kg | 50-55 kWh of electricity |
|------|--------------------------|

A fuel cell BMW can travel with 1kg hydrogen ==> c.100km

A hydrogen bus requires c.8kg of hydrogen for 100km

Source: Pareto Securities

Unlike oil and gas, hydrogen is not incumbent on individual states or regions with natural reservoirs. According to the Hydrogen Council, Europe should be able to produce half of its demand for green hydrogen locally in the future. The technological improvements on the equipment side as well as the sharp drop of costs of renewables are the starting point for the consideration. However, it first needs an impetus to get the market rolling. This impetus is coming currently from government investments programs (more than 30 national hydrogen strategies), which aim to achieve ambitious climate targets. The current stage can be compared to the development of the renewable energy technologies, which also had to rely on political support in their early stage.

### Green hydrogen production and technology

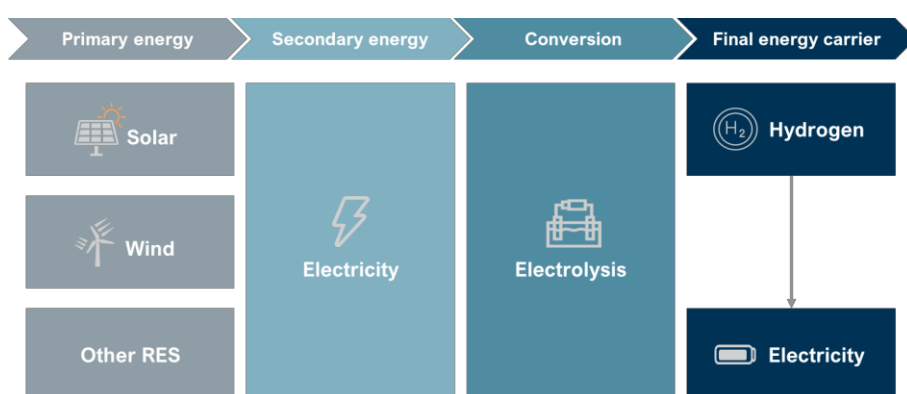
Green hydrogen is mainly produced from electrolysis. Electric energy is needed to separate hydrogen from the water molecules, a process called electrolysis. The production of green hydrogen is powered by the electricity generated from renewable energies such as solar and wind. In such cases, hydrogen becomes a sort of battery for electricity from solar panels and wind farms. Electricity can be generated once again from hydrogen. This process is completely emission free and considered as the ecologically option for producing hydrogen.

Electrolyzers are one of the key building blocks of the green hydrogen technology, and mainly categorized by the electrolyte materials and the temperature at which they are operated. Basically, in an electrolyzer an electrochemical reaction is used to separate water (H<sub>2</sub>O) into hydrogen (H<sub>2</sub>) and oxygen (O). As for the temperature, the technology is grouped into low-temperature electrolysis (LTE) and high-temperature electrolysis (HTE). The latter group is more efficient economically, but still in development and less commercially available. Within the LTE group, proton exchange membrane (PEM) electrolysis and alkaline electrolysis (AE) are two dominant traditional means in the market. In the PEM technology, with the co-function of a solid polymer electrolyte membrane and current, hydrogen is separated via protons from water. The protons combine then with electrons to create hydrogen molecules. The key advantages of the PEM technology are its high efficiency and long lifespan, as well as a wide dynamic operating range of 0-100%, which enables ideal hydrogen generating using excess renewable energy. Nonetheless, PEM electrolyzers require platinum group metals as catalysts and expensive titanium bipolar plates to survive the highly corrosive acidic environment. In the AE technology, a liquid electrolyte is utilized with a porous separator. Therefore, it saves costly metal materials and is known for lower operating costs but has a shorter lifespan due to the corrosive effect. AE is also comparatively slow at responding to a fluctuating power supply, and hence less suitable for renewable energy due to its longer response time. Moreover, AE requires additional purification and compression steps to produce high-quality gas at a higher output pressure. In a nutshell, even if the AE technology is the most mature one, it is only cost-effective for centralised and monolithic multi-MW projects.

### AEM as an emerging technology

Within the LTE group, an emerging third-generation technology anion exchange membrane (AEM) has been developed, which integrates the benefits of both conventional electrolysis PEM and AE. The AEM electrolysis adopts low-cost catalytic materials, as in AE, and a solid polymer electrolyte architecture, as in PEM electrolysis. The emerging technology has the following key advantages: 1) AEM electrolysis works in a highly diluted alkaline environment and is therefore much safer to handle. 2) The AEM electrolyser can use cost-efficient materials while making much purer hydrogen at higher efficiency. The half-cell arrangement in an AEM electrolyser allows H<sub>2</sub> and oxygen to be produced under pressure of 35 bar and 1 bar, respectively. The pressure difference between the half-cells can prevent the produced oxygen from crossing over to the high-pressure half-cell, thus ensuring that the hydrogen has very high purity (99.9 %). 3) The AEM electrolyser is fully scalable and is ideal for linking up with variable renewable energy sources.

### Pathways of green hydrogen production



Source: Pareto Securities

### Opportunities and challenges

As a fuel of the future, green hydrogen is crucially important for the ongoing energy transition.

- First and foremost, produced from renewable electricity via electrolysis and generating zero CO<sub>2</sub>, green hydrogen is the most promising and truly sustainable technology in reducing greenhouse gas (GHG) emissions. The uptake of green hydrogen contributes to abating up to 85 Gt CO<sub>2eq</sub> emissions cumulatively by 2050. To put this value in perspective, achieving the goal of limiting global warming to 1.5°C would necessitate limiting cumulative emissions to no more than 400 Gt CO<sub>2</sub> between 2020 and 2050. Moreover, green hydrogen is vital in sectors where emissions are hard to abate, such as iron, steel etc.
- Second, green hydrogen is split from water molecules, making it one of the most plentiful elements in the universe. Its high energy density and storage potential unlock versatile applications. For example, green hydrogen can be utilized as a clean fuel in energy-intensive industrial processes like metal processing and glass manufacturing. APEX's HyBit Bremen project is such an example, where green hydrogen will be used in Arcelor Mittal's steel factory.
- Third, the surge of investment in green hydrogen justifies its high potential. In 2021, electrolysis deployment reached a record-high level, with >200MW of new capacity added - a threefold increase over 2020. The green hydrogen investment is also fuelled by government's fiscal support. The Inflation Reduction Act (IRA) in the US offers significant subsidies for producing green hydrogen.

Challenges and opportunities coexist. Lack of infrastructure is one main challenges for green hydrogen development. Unlike oil and gas, hydrogen is not incumbent on individual states or regions with natural reservoirs. Moreover, cost competitiveness is another key consideration, for which technological improvements on the equipment side as well as the sharp drop of costs of renewables are the starting point. These first need an impetus to get the market rolling. The impetus is coming currently in the early

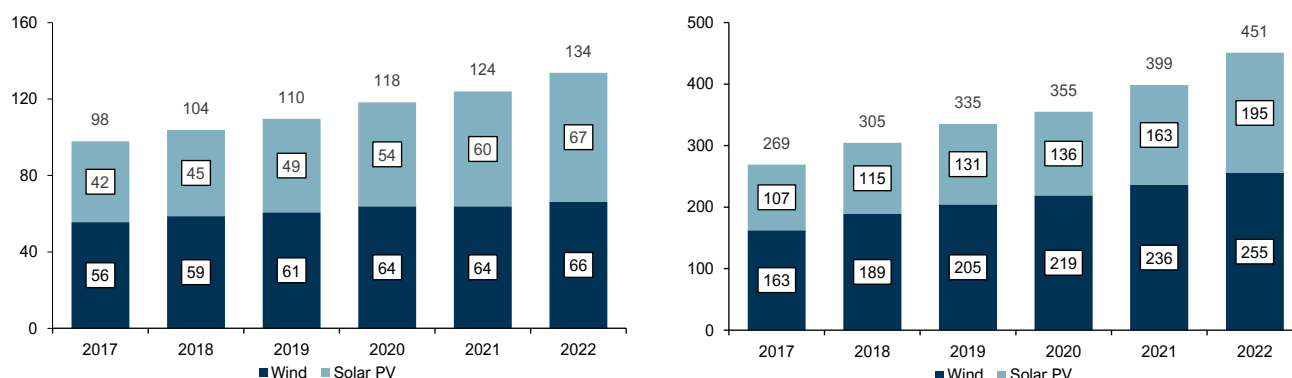
stage from government's political supports and investments programs (more than 30 national hydrogen strategies) in order to achieve their ambitious climate targets.

## Growth drivers and expectations

**Aiming at net-zero emissions, government's policy supports impel the market growth of green hydrogen.** On the one hand, government's public support helps to decrease the uncertainties about market outlook. On the supply end, uncertainty on the uptake of demand for clean hydrogen may hinder investments, while limited availability of green hydrogen and the cost gap to carbon-intensive alternatives could discourage widespread transition to green technologies in the demand end. Hence, government's policy support will give visibility to market players in both ends. Subsidies are crucial to help early-stage green hydrogen projects compete fairly, such as the US's IRA, as well as EU's hydrogen-related Important Projects of Common European Interest (IPCEI) program and Green Deal Investment Plan. Moreover, other instruments supported by governments like offtake contracts do drive demand, of which German H2Global is a good example. On the other hand, climate policy by governments do guide the hydrogen market's trajectory. Stringent climate regulation (for instance carbon taxes, quotas for green fuels in transport, etc.) and ambitious decarbonization targets with a clear timeline set anchor market expectations and foster investments in the emission-free green hydrogen.

**Another major driving force for the green hydrogen growth is the need to enhance energy security and decouple from Russian natural gas in Europe.** As a consequence of Russia's invasion in Ukraine, natural gas pipeline deliveries to the EU reduced by c.80% in 2022, exposing consumers and critical industries to higher energy bills and supply shortages. As a response, the EU launched the REPowerEU plan, which provides strong price and policy incentives for investors to build up alternative infrastructure and scale up substitutes for Russian natural gas. Green hydrogen development plays a crucial role: 1) Distinct to today's oil and gas markets characterized by high concentration and cartel formation, the green hydrogen market is competitive and diversified due to growing and abundant availability of renewable energy and hence much lower entry barriers. This offers Europe more import optionality and resilience to geopolitical shocks. 2) Unlike the blue alternatives, green hydrogen prices do not correlate directly with natural gas prices, which protects Europe against the political pressure as well.

**Cumulative installed capacity of renewable energy in the EU and Germany from 2017 to 2022**



Source: Pareto Securities, Statista

### The scale-up of renewable energy drives demand on green hydrogen production.

The global production of energy is increasingly shifting in favour of renewable energy sources, of which solar and wind are two of the fastest growing ones. Statista shows that from 2017 to 2022 the cumulative installed capacity of these two renewable energies increased by 67.5% to 450.9 GW in the EU, and by 36.6% to 133.7 GW in Germany. Based on the calculations of the German Federal Association of Energy and Water Industries (BDEW), in H1 2023 produced renewable solar and wind energy covered 39.2% of the domestic power consumption in the same period. According to the Bloomberg New Energy Outlook, solar and wind are expected to provide 50% of global energy by 2050e. Nevertheless, when the sun decides to shine, or the wind

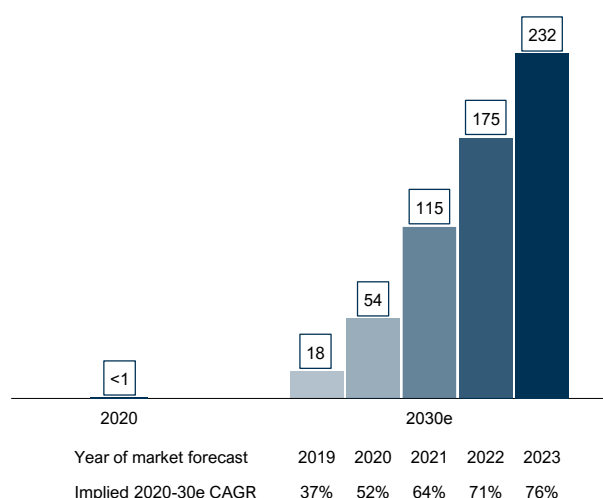
wishes to blow is independent of when we want to use the generated power. Therefore, given that hydrogen functions as an energy storage mechanism, we expect the trend towards renewable energy sources like wind and solar to greatly benefit the green hydrogen industry.

## Cost drivers and development

At present, cost competitiveness is certainly a main obstacle to tackle in the early stage for the ramp-up of green hydrogen. According to IRENA, the most recent green hydrogen cost ranges between USD 2.2-5.2 kg, which is obviously in particular at the higher end not commercially feasible. While factors such as the price for the electrolyzer and the utilization of the electrolyzer within the production process are crucial for the cost, the power price on the variable cost side is also very important. In countries and regions with low renewable energy prices the lower end of the cost range or even below can already be achieved. In our view the reduction of green hydrogen cost is expected to be driven by following factors:

**The ramp-up of electrolyzer production capacities and economies of scale will be the main trigger for cost reduction.** Even though in the mid-term by 2025, green hydrogen is more expensive to produce and transport, compared to its traditional alternatives grey and blue hydrogen. The green hydrogen cost is estimated at USD 1.7-4.6 kg by 2025, far above the cost of fossil-fuel-based hydrogen at USD 1.1-2.3 kg. This is because the key technologies essential for green hydrogen electrolysis (mainly electrolyzer system and its load factor) as well as storage are still in their early developmental stages. On the back of a learning curve the technologies will mature and realize economies of scale. According to the Hydrogen Council, the cumulative electrolysis capacity by 2030 increases from 18 GW in 2019 to 232 GW in 2023, which indicates an implied CAGR of 76% on the basis of <1 GW actual capacity in 2020.

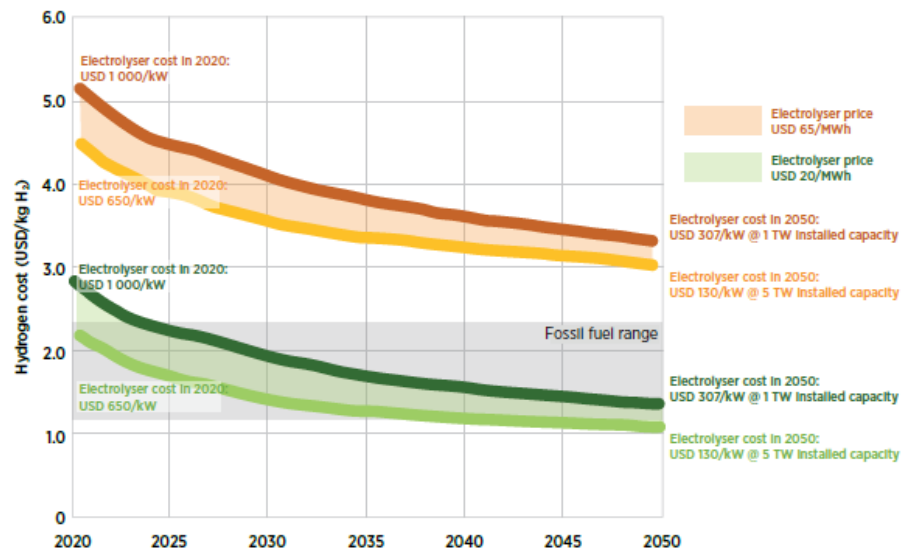
### Cumulative electrolysis capacity (GW) to be operational by 2030, forecast in 2019-2023



Source: Pareto Securities, Hydrogen Council

**The notable decrease in the cost of renewable electricity serves as a further prime driver.** Renewable electricity is still one of the largest single cost components for green hydrogen. According to IEA, through mass deployment of wind and solar power plants supported by public initiatives, from 2010 to 2021 production costs (LCOE) for utility scale projects significantly declined for solar (88%), onshore wind (68%), and offshore wind (60%). Given that the renewable energies fuel the carbon neutrality supported by governments, we anticipate this momentum of decrease to accelerate further and contribute to the cost reduction of green hydrogen.

### Cost reduction potential for green hydrogen



Source: IRENA

Based on the abovementioned points, we believe it is likely that the green hydrogen cost will decrease by ~20-35% and ~25-45% through 2030 and 2035, respectively.

## National policies, strategies, and initiatives

Currently over 30 countries and supranational regions have employed or are in the process of creating green hydrogen strategies, demonstrating an increasing interest in establishing value chains to meet the carbon neutrality targets. Following nations and regions have taken ambitious green hydrogen plans and initiatives, showing their potentials to set standards and game rules in the global green hydrogen market if their strategies are well operationalized.

### European Union (EU)

The EU aspires to become the industrial leader in green hydrogen and realize net-emissions of GHG by 2050. Its hydrogen strategy was firstly issued in 2020. The strategy focuses on green hydrogen and emphasizes renewable hydrogen's importance for the zero-carbon target. In 2022, in response to the energy crisis caused by Russia's invasion of Ukraine, the EU formulated a bold, common action plan entitled "REPowerEU" to realize independence of Russian fossil fuels by 2027.

#### "REPowerEU"

To match its ambitions, REPowerEU targets a 45% renewable energy share across the EU. Particularly, significant expansion of renewable energy shares in the electricity and transport leveraging green hydrogen is necessary. To put it into perspective, it is estimated by European Commission (EC) that by 2030 69% of renewables share in electricity and 32% of share in transport are required. Nevertheless, according to IEA's calculations, by 2027 renewable shares in these two key sectors are about to remain well below the EC's estimations: In IEA's main case, shares of only 54% and 16% are to be achieved in electricity and transport, respectively.

To be more specific, in the electricity sector 592 GW solar PV and 510 GW wind capacity are required to achieve the 69% share by 2030 modeled by the EC, namely annual additions of 48 GW for solar PV and 36 GW for wind in average. However, these two capacities are only scalable to 396 GW and 290 GW for each by 2027 in IEA's main case forecast, which is approximately equal to annual net additions of only 39 GW for solar PV and 17 GW for wind. The capacity expansion is limited by three main challenges: insufficient support schemes, lengthy and complex permitting procedures, as well as the storage technology (hydrogen as the medium) and the slow pace of transmission and distribution network upgrades.

In the transport sector, beside biofuels renewable electricity does play a crucial role in the REPowerEU plan, supported by growing electric vehicle (EV) sales and renewable capacity expansion. To raise the renewable energy share, EU member states would need to make transport policies more ambitious, to increase the supply of renewable fuels from non-biological sources (e.g., hydrogen), as well as to accelerate the deployment of EV and its supporting facilities such as hydrogen fueling station.

To close the abovementioned gaps, accelerating hydrogen production is a crucial pillar of the "REPowerEU" plan, which proposes an additional 14.4 Mt of green hydrogen on top of the previous 5.6 Mt, totalling 20 Mt by 2030. The plan includes the installation of 40 GW of electrolyzers and domestic green hydrogen production of 10 Mt in the EU, for which total investment needs are estimated at c.EUR 300bn. Although the vast majority of this will come from private funding, public funding does play a crucial role, particularly in the early stage of market establishing. To achieve the strategy, the EU has set out new plans to stimulate and support investment in sustainable hydrogen production through a European Hydrogen Bank (EHB), with an initial funding of EUR 800m. The European Commission also approved a state aid of EUR 5.4bn to 35 companies for 41 research, development, and deployment projects on a wide range of hydrogen technologies, through the IPCEI scheme. In addition, the EU launched the Clean Hydrogen Alliance, which brings together renewable hydrogen production, demand in industry, mobility, and other sectors, as well as hydrogen transmission and distribution. Its members come from industry, public authorities, civil society, and other stakeholders.

### Germany

Germany has set itself ambitious energy and climate targets—to become a market leader in green hydrogen and to achieve GHG neutrality by 2045. To meet the target, German Federal Government adopted in 2020 the National Hydrogen Strategy, in which green hydrogen is set as a vital energy source of the future and will be utilized in industry, the transport sector and the energy system. Following the strategy, those hard-to-abate sectors with limited choices for decarbonisation are an emphasis, such

as refineries, steel production, the chemical industry, aviation, shipping and so forth. The strategy supports two green hydrogen phases—the first phase up to 2023 focuses on establishing the foundation for a national green hydrogen market, providing the basis for the future expansion. The subsequent phase (starting from 2024) aims to strengthen the domestic market and extend its development of European and international markets. To implement the strategy, a committee of state secretaries was set, supported by a national hydrogen council comprising 25 representatives from business, science and civil society. Fiscally, Germany allocated c.EUR 9bn earmarked for green hydrogen development and planned to increase the electrolyzer capacity to 10 GW by 2030. Furthermore, a competition-based instrument H2Global is supported by the Federal Government, which concludes long-term purchase contracts on the supply side and short-term sales contracts on the demand side. The H2Global instrument helps to compensate the difference between supply and demand prices, and to overcome the market failure.

### United States (US)

As the second-largest consumer and producer of hydrogen in the world, the US accounts for 13% of global demand. In 2021, the US signed the Infrastructure Investment and Jobs Act into law, dedicating USD 9.5bn to accelerate the development of clean hydrogen technology. Strategically, the US launched the Hydrogen EarthShot to bolster the development of renewable hydrogen projects and sets an ambitious goal to reduce the cost of clean hydrogen to 1 USD/kg in one decade. In 2022, the White House passed the IRA (Inflation Reduction Act), which incentivizes green hydrogen investments through various tax-related provisions, including Investment Tax Credits (“ITCs”) and Production Tax Credits (“PTCs”) for the production of qualified clean hydrogen during a 10-year period till 2032. The IRA can be considered as one of the most critical step in the US history to accelerate energy transition. Under the IRA, an estimated USD 369bn will be spent addressing energy security and climate change. The base tax credit is set at 0.6 USD per kilogram of clean hydrogen and can increase to 3.0 USD per kilogram if the hydrogen’s lifecycle carbon intensity ranges between zero and 0.45 kg CO<sub>2eq</sub> per kilogram of hydrogen. In the first five years of production, a “direct pay option” is available for the same amounts of a tax credit. Additional bonus credit is provided when prevailing wage and apprenticeship requirements are met. Besides, the tax credit is “transferable”, meaning producers with no tax burden can sell their tax credits to a buyer who owes taxes. The lucrative financial supports under IRA are broadly applicable, including not only green hydrogen producers but also transportation and industry using renewable hydrogen. For instance, some vehicle makers are brought off the sidelines and into the clean transportation arena, with plans to scale up hydrogen vehicle manufacturing and build new infrastructure. Moreover, attracted by the IRA subsidies, many players are shifting their investments from Europe to the US. Companies with local manufacturing capacities will be the most beneficiaries from the IRA. Given the fact, that the US had so far rather low production capacities in the cleantech industry, this step can be considered as very purposeful, in our view.

### China

With annual consumption of more than 24 Mt, China is the world’s largest user and producer of hydrogen. Since 2019, China has had over 30 green hydrogen projects in the works. In 2022, the Chinese government laid out a medium- and long-term development plan for hydrogen, targeting green hydrogen production to reach up to 0.2 Mt per year by 2025. The plan envisages the use of renewable clean hydrogen in sectors transport, energy storage, electricity generation and industry.

## Major green hydrogen projects in Europe

### Europe's major large-scale green hydrogen projects, ranked by electrolyzer capacity



\* Incl. 0.5 GW for green ammonia production

Source: Pareto Securities, IRENA, Roland Berger

**HyDeal Ambition:** Located across Western Europe (from Spain, eastern France to Germany), HyDeal Ambition targets 3.6 Mt of green hydrogen production in 2030, with 95 GW of solar and 67 GW of electrolyzer capacity. About 30 energy players in the up-, mid- and downstream are dedicated to build an integrated value chain to realize the production cost at EUR 1.5/kg, delivering zero-carbon energy cheaper than natural gas prices in Europe. It has been ranked by the International Renewable Energy Agency (IRENA) as the world's largest green hydrogen project.

**NorthH2:** Situated in northern Netherlands and powered by offshore wind, NorthH2 plans to generate 1 Mt green hydrogen annually by 2040. Owned by a mix of Netherlands- and Germany-based companies, the project targets to assist with driving weighty industry in these two countries.

**AquaVentus:** AquaVentus aims at 1 Mt of green hydrogen production per year by 2035, generated from wind energy on the North Sea and transported on land by pipeline. The broad-based project family is realising 10 GW of generation capacity. Owned by a consortium of 47 organisations, AquaVentus is the largest exclusively German planned plant.

**Green Marlin:** Located in southwest Ireland and powered by onshore wind, Green Marlin is a joint venture project aiming at developing a 3.2 GW energy facility to produce green hydrogen and green ammonia (2.7 GW and 0.5 GW, respectively). It has the potential to reduce Irish carbon emissions by 2.4 Mt per year, the equivalent of the carbon emissions of a quarter of Irish homes.

**Wilhelmshaven:** An electrolyzer with an initial capacity of 500 MW is to be built, and a second unit is in planning, lifting total capacity of 1 GW in the Wilhelmshaven green hydrogen hub situated in Lower Saxony, Germany. Run by the hydrogen developer Tree Energy Solutions (TES) and German utility EWE, the project is to be installed and operated starting in 2028. The hub in Wilhelmshaven is strategically located on the North Sea coast and can accommodate up to 2 GW capacity electrolyzers with renewable energy sources such as offshore wind for locally produced green hydrogen.

**HySynergy:** The HySynergy project by the hydrogen company Everfuel and the clean hydrogen infrastructure fund manager Hy24 aims to establish a large-scale green hydrogen production and storage facility in Fredericia, Denmark, with a capacity of 300

MW by 2025 and 1 GW by 2030. By 2025, HySynergy will have the capacity to produce green hydrogen that may facilitate an up to 500k tonnes reduction of CO<sub>2</sub> emissions per year from the industry and the mobility sectors.

In addition to the abovementioned giga-scale green hydrogen projects, numerous flagship mega-scale projects are underway in Europe. For instance, the government of Portugal has earmarked the Port of Sines to become the country's green hydrogen hub with a projected electrolyzer capacity of 500 MW, as the deep-water port enables easy maritime access to industrial centres across Europe, as well as direct connection to Portugal and Spain's natural gas networks. In France, Normand'Hy led by Air Liquide has planned a 200 MW electrolyzer that will serve industrial and heavy-duty mobility customers in the region. Leveraging a total capacity of 120 MW, Masshyla led by Engie and TotalEnergies will produce its first green hydrogen from 2026, at an average of 50 tonnes per day. In Spain, with an installed capacity of 112 MW, project Basque Hydrogen Corridor aims to create a "hydrogen ecosystem" in the Basque Country that will enable progress to be made in the decarbonisation of the energy, industrial, residential and mobility sectors. An annual production of 20k tonnes of renewable hydrogen by 2026 is expected, reducing more than 1.5 Mt CO<sub>2</sub> emission per year. In Germany, the joint project by HH2E and MET Group is to develop one of the largest green hydrogen production plants on the Baltic coast, with a capacity of 100 MW and 6k tonnes production per year by 2025. The project has a potential for scaling up to 1 GW and an annual production of 60k tonnes by 2030. In the east of Germany, a further HH2E project Thierbach is planned, with an initial capacity of 100 MW by 2025 and scalable to 1 GW by 2030.

## Competitive landscape and key players

The global green hydrogen market is highly competitive including globally diversified players, regional players, as well as a large number of country-niche players, of which most are renewable energy providers and suppliers of equipment such as electrolysis solutions. We believe there will be also a market segmentation with regard to the scale of the projects (utility scale >1 GW, mid- to industrial scale with 10 MW to 1 GW) and purpose-related (e.g. for the export). The value chain can generally be divided into following fields: project development, component supplier, OEMs, Engineering Procurement Construction (EPC) as well as, operating and maintenance (O&M). In the following overview, we try to figure out key European players in the value chain as well as to deep dive into APEX's competitors in fields development, EPC and O&M.

As a leading integrated value chain player in the German green hydrogen market, APEX focuses mainly on mid- to industrial scale projects. Early market entry and its state-of-the-art know-how allow APEX full filled pipeline, which will now be executed, for instance the 100 MW IPCEI project H<sub>2</sub>ERO. Therefore, APEX generates relatively sound revenue (FY 2022 EUR 4.0m and already >EUR 15m in FY 2023e) compared to its country-niche peers and even some pan-European competitors. As already outlined, we believe that the competitive pressure from large corporates should be limited as they are expected to continue to focus on GW-scale projects.

## Dive into key European project developers I

| Company                                                                             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Revenue             |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
|    | <ul style="list-style-type: none"> <li>Incorporated in 2021 and based in Lysaker, Norway, Aker Clean Hydrogen as a subsidiary of Aker Horizons develops, builds, owns, and operates clean hydrogen, ammonia, and methanol facilities worldwide</li> <li>The company holds a portfolio of clean hydrogen projects, in which the green hydrogen <b>project Rjukan</b> located in Eastern Norway has a total capacity of <b>40 MW</b>. The project will be developed in two phases of 20 MW each (in the first phase a commercial operation date is planned in 2025), and serves industry, shipping as well as mobility offtakers</li> <li>The firm employs c.100 people</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | FY21:<br>EUR 1.2m   |
|    | <ul style="list-style-type: none"> <li>As an independent energy company, Enertrag generates and distributes electricity and heats from renewable sources solar, wind and green hydrogen. 788 constructed turbines and a "PowerSystem" service network of &gt;1,222 wind turbines enable Enertrag an annual energy production of 1.38m MWh</li> <li>For green hydrogen, it provides <b>end-to-end solutions</b> incl. <b>development planning, project financing, construction management, operations</b>, etc. The company operates <b>12 green hydrogen sites in Germany, 3 sites in France, 2 sites RoE and 7 sites RoW</b></li> <li>Founded in 1998 and headquartered in Dauerthal, Germany, the firm has c.800 employees</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                         | FY22:<br>EUR 250.8m |
|    | <ul style="list-style-type: none"> <li>Founded in 2019 and headquartered in Herning, Denmark, Everfuel is a developer, EPC, owner and operator of the complete green hydrogen value chain. As a leading European integrated energy company, it mainly serves mobility customers with all-inclusive hydrogen fueling solutions, as well as industrial stakeholders with alternative hydrogen-based green fuels and Power to X-products</li> <li>The flagship project <b>HySynergy</b> is to become the company's <b>initial hydrogen hub and major PtX facility</b>, with <b>20 MW</b> to be realized in <b>Q1 2024</b>, <b>300 MW</b> electrolyzers commissioned <b>by 2025</b> and <b>1 GW</b> planned <b>by 2030</b></li> <li>Besides, further <b>3 green hydrogen projects</b> have been announced with known capacity <b>420 MW in total</b> to be realized by 2027</li> <li>In Feb 2023, Everfuel (51% stake) created a <b>EUR 200m JV</b> with Hy24 for up to 1 GW electrolyzer development across the Nordics</li> <li>With ~100 employees, the company is currently active in Norway, Sweden, Denmark, Germany, Netherland and Belgium</li> </ul>                                       | FY22:<br>EUR 2.8m   |
|  | <ul style="list-style-type: none"> <li>Founded in 2019 and located in Borre, GEN2 Energy is a Norwegian energy company intended to develop, build, own and operate an integrated value chain for green hydrogen. It runs projects in hydrogen production, supply chain building, safety monitoring and product sales</li> <li>GEN2 Energy runs <b>4 production projects</b> in Norway, with a total production capacity of <b>100 MW</b> and generating <b>~45 tonnes of green hydrogen daily</b></li> <li>Employee numbers: ~30</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | n.a.                |
|  | <ul style="list-style-type: none"> <li>GP JOULE is a Germany-based renewable energy company that specializes in the development, turnkey EPC services, and operation &amp; maintenance of renewable energy projects. It focuses on various areas of the renewable energy sector, incl. solar, wind, heating networks and hydrogen</li> <li>The company's <b>wind-powered "eFarm"</b> is <b>Germany's largest green hydrogen mobility project</b>, consisting of <b>5 production sites (1.125 MW total capacity)</b> located close to existing wind farms, <b>2 filling stations, 2 fuel cell buses</b> for regular bus service, as well as <b>30 fuel cell cars</b> with potential for &gt;100 vehicles</li> <li>Founded in 2009 and headquartered in Schleswig-Holstein, Germany, GP JOULE employs ~700 people</li> </ul>                                                                                                                                                                                                                                                                                                                                                                      | n.a.                |
|  | <ul style="list-style-type: none"> <li>HH2E operates as a new green energy company that develops technology to convert input of solar or wind energy into green hydrogen, heat, and carbon-free power to serve local industry and municipalities</li> <li>The company aims to install 4 GW of electrolysis capacity in Germany by 2030. Currently it runs <b>2 major green hydrogen production projects</b>: <ul style="list-style-type: none"> <li>Jointly developing one of Europe's largest plants with MET Group in <b>Lubmin, Germany: 100 MW input capacity by 2025</b> enables <b>6k tonnes/year production</b>, and scaling up to 1 GW by 2030 realizes 60k tonnes production yearly</li> <li><b>Project Thierbach</b>: Plant located in the region Borna (Saxony, Germany) with an initial input capacity of <b>100 MW by 2025</b>, scalable to &gt;1 GW by 2030</li> </ul> </li> <li>Incorporated in 2021 and based in Hamburg, Germany, the startup has &gt;10 employees</li> </ul>                                                                                                                                                                                                  | n.a.                |
|  | <ul style="list-style-type: none"> <li>Founded in 2017 and headquartered in Wiesbaden, Germany, Hy2gen develops, finances, builds, and operates plants for production of green hydrogen and its derivatives green ammonia, methanol as well as other PtX-fuels like SAF</li> <li>Leveraging its first plants being built in France, Norway, Canada, and Germany, the company holds a <b>current project pipeline in planning and construction of 1.3 GW</b> (incl. green hydrogen derivatives). A project pipeline of &gt;12 GW is in development</li> <li>Key green hydrogen projects: <ul style="list-style-type: none"> <li><b>Sunrhysse</b>: French plant located in Provence-Alpes-Côte d'Azur, with <b>4 MW PEM electrolyzer</b> as well as <b>530 tonnes hydrogen produced per year</b> for direct distribution and mobility uses in the south of France (operation start in Q4 2024)</li> <li><b>Conseil I</b>: Hy2gen's first site based in Rheinland-Pfalz, Germany, with <b>2 MW PEM electrolyzer</b> and <b>312 tonnes hydrogen generated annually</b> for industrial and mobility use (operation start in Q4 2023)</li> </ul> </li> <li>The company employs c.30 people</li> </ul> | n.a.                |

Source: Company data, Pareto Securities

## Dive into key European project developers II

| Company                                                                                   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Revenue           |
|-------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
|  Lhyfe   | <ul style="list-style-type: none"> <li>Founded in 2017 and headquartered in Nantes, France, Lhyfe engages in the production and supply of renewable hydrogen mainly for industry and mobility</li> <li>The company designs, builds and exploits its green hydrogen production sites, with a project pipeline <b>40 MW (awarded), 9 MW (in construction) and 1 MW (in operation)</b>. It has a commercial pipeline of <b>93 projects across Europe</b>, incl. <b>20 in advanced development</b> to be completed by 2026</li> <li>Capacity breakdown: <ul style="list-style-type: none"> <li>By geography: Northern Europe (52%), Western Europe (45%), and Southern Europe (3%)</li> <li>By project type: Industry (66%), mobility (9%), and others (25%)</li> </ul> </li> <li>Lhyfe owns c.150 employees, of which 56 are specialists in engineering and R&amp;D</li> </ul> | FY22:<br>EUR 0.6m |
|  PROTIUM | <ul style="list-style-type: none"> <li>As a full value chain hydrogen energy solution provider, Protium develops, owns and operates renewable and green hydrogen infrastructure, with end-applications mainly in aviation, consumer-facing industrials and commercial transport</li> <li>Operating across the UK, the company currently has a total pipeline expected to support the development of <b>&gt;500 MW</b> of renewable resources <b>by 2025</b>, rising to at least 1 GW by 2030</li> <li>Founded in 2019 and headquartered in London, it has 60+ employees worldwide</li> </ul>                                                                                                                                                                                                                                                                                | n.a.              |
|  TES     | <ul style="list-style-type: none"> <li>Founded in 2019 and headquartered in Zaventem, Belgium, TES provides green hydrogen at scale into global markets and particularly to the mobility, industrial and power sectors. It is developing production, supply and import &amp; export hubs in Germany, Benelux, France, the Middle East and North America</li> <li>Since 2022, the company has been partnering with EWE to build a <b>500 MW electrolysis plant in Wilhelmshaven, Germany</b>, with operation expected to start in 2028. TES is also co-developing the world's largest green hydrogen integrated project with Fortescue Future Industries in Wilhelmshaven, to supply <b>300k tonnes hydrogen</b> in the first phase. In the US, it partners with TotalEnergies to build production unit with 1 GW electrolyzer</li> <li>Employee numbers: &gt;100</li> </ul> | n.a.              |

Source: Company data, Pareto Securities IRENA

## Financials

Backed on contracted order volume of EUR 45m, APEX has a pretty good visibility for topline development in FY 2023e and FY 2024e. We forecast revenues to increase from EUR 15.6m in FY 2023e to close to EUR 90m in FY 2026e, driven by the development and EPC projects. However, from FY 2027e onwards, APEX's income stream will face a transition with a dominant share of predictable and recurring revenues and cash flows from its own plant operator business, when H<sub>2</sub>ERO and Lubmin are expected to start kick in. Nevertheless, the future financial development and our estimates are subject to uncertainties, as projects may be delayed and expected orders may not be placed at all. Further, the company will need an external funding, in addition to its current cash position of EUR 50.4m. We forecast the additional financing requirement to realize the projects ahead to be EUR 100-180m between FY 2024e and FY 2027e.

### FY 2023e with minor importance

For the current year the company guides revenues of more than EUR 15m, based on already secured awarded contracts. For the earnings development in FY 2023e, the company has not guided any target.

The first half 2023 with revenues of EUR 2.3m (H1 2022: EUR 0.2m) gives little insights about the achievement of the full year revenue target. The major portion of the expected FY 2023e revenues will be incurred in the final quarter of the year. Due to the still low level of business activity, the H1 figures have low information value. Less surprisingly, on the back of the business ramp-up and the related investments, H1 earnings were in the red.

#### Review H1 2023

| EURm          | Q1 2023 | Actual<br>Q1 2022 | yoy  | Q2 2023 | Actual<br>Q2 2022 | yoy  | H1 2023 | Actual<br>H1 2022 | yoy  |
|---------------|---------|-------------------|------|---------|-------------------|------|---------|-------------------|------|
| Revenues      | 1.5     | 0.0               | 1.5  | 0.7     | 0.2               | 0.6  | 2.3     | 0.2               | 2.1  |
| EBITDA        | (3.5)   | (1.9)             | -1.6 | (3.8)   | (2.1)             | -1.7 | (7.3)   | (4.1)             | -3.2 |
| EBITDA margin | neg.    | neg.              | nm   | neg.    | neg.              | nm   | neg.    | neg.              | nm   |
| EBIT          | (4.0)   | (2.1)             | -1.9 | (4.3)   | (2.3)             | -2.0 | (8.3)   | (4.4)             | -4.0 |
| EBIT margin   | neg.    | neg.              | nm   | neg.    | neg.              | nm   | neg.    | neg.              | nm   |
| EBT           | (4.4)   | (3.0)             | -1.4 | (4.6)   | (3.0)             | -1.6 | (9.0)   | (6.0)             | -3.0 |
| EBT margin    | neg.    | neg.              | nm   | neg.    | neg.              | nm   | neg.    | neg.              | nm   |
| Net income    | (4.4)   | (3.0)             | -1.4 | (4.6)   | (3.0)             | -1.6 | (9.0)   | (6.0)             | -3.0 |

Source: APEX Group, Pareto Securities

The operational development in FY 2023e will be almost entirely driven by the two projects HyBit Bremen and H<sub>2</sub>-Whylen. From the off-take agreements with Amazon and Rhodius as well as from the sale of green hydrogen at its filling station, we forecast revenues of close to EUR 1m. The recently acquired engineering company Plant Engineering should contribute also with approximately EUR 1m to the group revenues. Based on these assumptions, we derive a revenue forecast for FY 2023e of EUR 15.6m. Given the rather low topline level and the ongoing ramp-up of the business, we forecast in FY 2023e an EBITDA loss EUR -8.8m. In comparison to the already contracted projects as well as the growing project pipeline, the FY 2023e is of minor importance, and reflects the early stage of the company's development as well as the infant hydrogen industry.

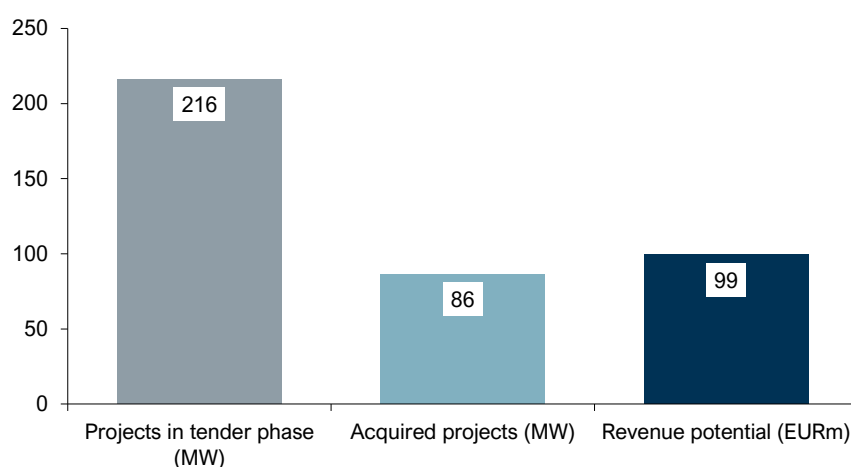
Revenues in the years 2020 and 2021 were negligible. The company started generating revenues in 2022, mainly driven by the HyBit Bremen (10 MW) project. The low topline level in combination with an increasing cost base has led to EBITDA losses in FY 2022 of EUR -9.2m.

## Construction of our forecasts

APEX's contracted development and EPC projects have a total volume of EUR 45m, of which EUR 15m is targeted to be realized in FY 2023e, leaving approximately EUR 30m for the coming years. Bear in mind, that the approximately EUR 24m out of the long-term rebus contract is also included in this figure. Therefore, a significant portion of our estimated short-term revenues are not yet secured. However, we consider this as the nature of project business, which should predominate until FY 2027e, when the H<sub>2</sub>ERO and Lubmin start to kick in. Further we are less concerned if we take into account the company's pipeline with five projects (216 MW volume) being in the tender process. Acknowledging that customer-triggered delays may occur and should not be surprisingly in the still infant hydrogen market, the potential size of these projects is enough to enable APEX a profitable development already in FY 2025e, in our view.

Even if assuming that APEX can acquire only 40% of these projects, i.e. c.86 MW, this would mean a revenue potential of EUR 86-110m to be realized largely in 2025e.

### Assumed scenario for projects in tender phase



Source: APEX Group, Pareto Securities

We believe that in the coming three years APEX will be in a transition phase and the risk of fluctuating revenues will be inherent. At the latest from FY 2027e onwards we will see a much more predictable and recurring revenue stream, coming from the company's planned own operated hydrogen plants. However, we think that the lumpy character of the revenue development will decline over the years as APEX will strengthen its position as a major player in the German hydrogen market. The already developed and implemented hydrogen plants will help APEX to extend its track record.

### Composition of our FY 2023e-2027e revenue forecasts (EURm)

| Projects                           | 2023e       | 2024e       | 2025e       | 2026e       | 2027e        |
|------------------------------------|-------------|-------------|-------------|-------------|--------------|
| HyBit Bremen                       | 3.9         | 1.1         | -           | -           | -            |
| H2 Whylen                          | 9.7         | 1.3         | -           | -           | -            |
| Rebus, EPC                         | -           | 6.0         | -           | -           | -            |
| Rebus, hydrogen supply and O&M     | -           | 4.4         | 7.1         | 9.1         | 9.2          |
| Heidekraut                         | -           | 7.0         | -           | -           | -            |
| H2ERO                              | -           | -           | -           | -           | 10.6         |
| Lubmin                             | -           | -           | -           | -           | 14.9         |
| Other projects                     | 2.0         | 20.0        | 59.6        | 79.7        | 87.7         |
| <b>Group revenues</b>              | <b>15.6</b> | <b>39.8</b> | <b>66.7</b> | <b>88.8</b> | <b>122.4</b> |
| Realized projects in MW            | 14          | 25          | 52          | 77          | 94           |
| Realized projects in MW, cumulated | 14          | 38          | 90          | 167         | 261          |

Source: Pareto Securities

In the previous sections we have already outlined in detail our assumptions for the two major projects H<sub>2</sub>ERO and Lubmin, for which we expect long-term income from the operator model. However, we do not rule out that one of these two plants will already be in operation in 2026, which we would consider as an upside to our scenario. Furthermore, we have not taken into account any additional business from outside of Germany, which in our opinion can also not be ruled out.

In our calculation, APEX will have commissioned 260 MW by FY 2027e, compared to the company's target of >300 MW.

According to the management, APEX is in advanced talks with another customer for another large project, the details of which cannot yet be disclosed. We got the impression, that the management is very confident in acquiring this additional project, which would contribute to the company's long-term target of 1.5 GW of developed projects by 2030.

We believe that the current stage of the hydrogen market allows EPC contractors to achieve somewhat lush margins. With a more mature market, we expect the EBITDA margins here to normalize to the usual range of 7-8% for renewable energy projects. Consequently, we assume for the FY 2023-25e EPC margins in the range of 10-15%, which should then come down to approximately 8% from FY 2026e onwards. This is also reflected in our assumptions for the gross margin, which we expect to improve further towards 40% by 2025e, before an implied decline due to an increasing margin pressure. However, in the years after 2027e, when the hydrogen plant operator business will gain significance, gross margins of >50% are realistic. This assumption is also reflected in our FY 2027e EBITDA estimate of EUR 21.3m, which includes the first contributions from H<sub>2</sub>ERO and Lubmin. However, in view of long-term development and construction periods, delays in the project processing and related adverse impacts on our P&L estimates cannot be ruled out. Basically, we assume that APEX should be profitable with each project already today. However, due to the ongoing ramp-up and still some inefficiencies in the order processing, we expect the losses on group EBITDA level to continue in the FY 2023e and FY 2024e.

In the current situation with limited business activities single projects have a greater impact on earnings. Therefore, miscalculations at single projects can lead to burdening losses on the group level. Nevertheless, we believe the company is currently facing a steep learning curve and is gaining a lot of experiences.

#### P&L statement and our forecasts

| EURm                     | 2020          | 2021          | 2022          | 2023e         | 2024e         | 2025e         | 2026e         | 2027e        |
|--------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|
| <b>Revenue</b>           | <b>0.1</b>    | <b>0.2</b>    | <b>3.8</b>    | <b>15.6</b>   | <b>39.8</b>   | <b>66.7</b>   | <b>88.8</b>   | <b>122.4</b> |
| Other operating income   | 0.2           | 0.9           | 0.5           | 1.0           | 1.5           | 1.5           | 1.5           | 9.9          |
| Change in inventories    | -             | 0.2           | -             | -             | -             | -             | -             | -            |
| Cost of materials        | (0.0)         | (0.0)         | (3.1)         | (11.7)        | (28.2)        | (41.8)        | (59.7)        | (83.7)       |
| % of sales               | 36%           | 22%           | 81%           | 74.9%         | 70.9%         | 62.6%         | 67.2%         | 68.4%        |
| <b>Gross Profit</b>      | <b>0.3</b>    | <b>1.2</b>    | <b>1.3</b>    | <b>4.9</b>    | <b>13.1</b>   | <b>26.4</b>   | <b>30.6</b>   | <b>48.6</b>  |
| <b>Gross margin</b>      | <b>nm</b>     | <b>nm</b>     | <b>32.8%</b>  | <b>31.5%</b>  | <b>32.8%</b>  | <b>39.6%</b>  | <b>34.4%</b>  | <b>39.7%</b> |
| Personel expenses        | (1.1)         | (2.7)         | (3.7)         | (5.9)         | (8.0)         | (10.0)        | (11.8)        | (13.8)       |
| Employees                | 15            | 31            | 47            | 91            | 110           | 140           | 155           | 190          |
| Other operating expenses | (1.5)         | (4.8)         | (6.8)         | (7.8)         | (9.4)         | (10.9)        | (10.6)        | (13.5)       |
| % of sales               | nm            | nm            | 176%          | 50%           | 24%           | 16%           | 12%           | 11%          |
| <b>EBITDA</b>            | <b>(1.9)</b>  | <b>(6.2)</b>  | <b>(9.2)</b>  | <b>(8.8)</b>  | <b>(4.4)</b>  | <b>5.5</b>    | <b>8.2</b>    | <b>21.3</b>  |
| <b>EBITDA margin</b>     | <b>neg.</b>   | <b>neg.</b>   | <b>neg.</b>   | <b>neg.</b>   | <b>neg.</b>   | <b>8.3%</b>   | <b>9.2%</b>   | <b>17.4%</b> |
| Depreciation             | (0.4)         | (0.6)         | (1.3)         | (2.0)         | (3.1)         | (4.0)         | (6.0)         | (12.0)       |
| Depreciation of sales    | nm            | nm            | 33%           | 13%           | 8%            | 6%            | 7%            | 10%          |
| <b>EBIT</b>              | <b>(2.3)</b>  | <b>(6.8)</b>  | <b>(10.5)</b> | <b>(10.8)</b> | <b>(7.4)</b>  | <b>1.5</b>    | <b>2.2</b>    | <b>9.3</b>   |
| <b>EBIT margin</b>       | <b>neg.</b>   | <b>neg.</b>   | <b>neg.</b>   | <b>neg.</b>   | <b>neg.</b>   | <b>2.3%</b>   | <b>2.5%</b>   | <b>7.6%</b>  |
| Financial result         | (1.1)         | (1.6)         | (3.4)         | (0.1)         | (0.5)         | (6.5)         | (6.5)         | (6.5)        |
| <b>EBT</b>               | <b>(3.4)</b>  | <b>(8.4)</b>  | <b>(13.9)</b> | <b>(10.9)</b> | <b>(7.9)</b>  | <b>(5.0)</b>  | <b>(4.3)</b>  | <b>2.8</b>   |
| <b>EBT margin</b>        | <b>neg.</b>   | <b>neg.</b>   | <b>neg.</b>   | <b>neg.</b>   | <b>neg.</b>   | <b>neg.</b>   | <b>neg.</b>   | <b>2.3%</b>  |
| Taxes                    | (0.2)         | (0.7)         | 0.9           | -             | -             | -             | -             | -            |
| Tax rate                 | -7.0%         | -8.2%         | 6.7%          | 0.0%          | 0.0%          | 0.0%          | 0.0%          | 0.0%         |
| <b>Net Profit</b>        | <b>(3.6)</b>  | <b>(9.1)</b>  | <b>(12.9)</b> | <b>(10.9)</b> | <b>(7.9)</b>  | <b>(5.0)</b>  | <b>(4.3)</b>  | <b>2.8</b>   |
| Net profit % of sales    | neg.          | neg.          | neg.          | neg.          | neg.          | neg.          | neg.          | 2.3%         |
| <b>EPS</b>               | <b>(0.18)</b> | <b>(0.45)</b> | <b>(0.64)</b> | <b>(0.30)</b> | <b>(0.22)</b> | <b>(0.14)</b> | <b>(0.12)</b> | <b>0.08</b>  |

Source: APEX Group, Pareto Securities

## Balance sheet

Following the transaction with exceet Group, APEX has achieved a strong balance sheet that is largely sufficient to implement the current contracted projects. While APEX is the solely operating business of exceet Group and a separate APEX reporting does not exist, the exceet reporting is the most meaningful information on the financials. As of June 2023, the company had an equity of EUR 73.3m, implying a high equity ratio of 58.2%. Taking into account the expected losses in FY 2023e, we forecast an equity of EUR 68.9m by end of the year.

Entirely driven by exceet transaction, cash per end of June was at EUR 50.4m. Even after considering a capex of EUR 17m and a bond repayment of EUR 9.1m, cash at the end of the FY 2023e is expected to be at a very comfortable level with EUR 42.1m. Other than non-current financial liabilities of EUR 30.7m the company has no meaningful debt.

### Balance sheet key items

| Balance Sheet                     | 2020       | 2021       | 2022        | 2023e       | 2024e        | 2025e        | 2026e        | 2027e        |
|-----------------------------------|------------|------------|-------------|-------------|--------------|--------------|--------------|--------------|
| <b>Total assets / liabilities</b> | 30.0       | 55.3       | 61.7        | 120.1       | 256.0        | 333.3        | 411.9        | 498.7        |
| Fixed Assets                      | 24.5       | 35.4       | 33.5        | 47.4        | 109.7        | 194.3        | 323.6        | 410.1        |
| % of total assets                 | 82%        | 64%        | 54%         | 39%         | 43%          | 58%          | 79%          | 82%          |
| Inventory                         | 0.3        | 2.6        | 6.5         | 13.0        | 16.6         | 22.4         | 27.1         | 25.2         |
| % of sales                        | nm         | nm         | nm          | 83%         | 42%          | 34%          | 31%          | 21%          |
| Receivables                       | 2.9        | 13.5       | 0.7         | 2.6         | 6.5          | 11.0         | 14.6         | 20.1         |
| % of sales                        | nm         | nm         | nm          | 16%         | 16%          | 16%          | 16%          | 16%          |
| Other Assets                      | 0.0        | 0.0        | 17.2        | 10.3        | 10.3         | 10.3         | 10.3         | 10.3         |
| % of total assets                 | nm         | nm         | 28%         | 9%          | 4%           | 3%           | 3%           | 2%           |
| <b>Cash and equivalents</b>       | <b>0.7</b> | <b>0.6</b> | <b>0.1</b>  | <b>42.1</b> | <b>103.5</b> | <b>79.5</b>  | <b>10.8</b>  | <b>0.9</b>   |
| % of total assets                 | 2%         | 1%         | 0%          | 35%         | 40%          | 24%          | 3%           | 0%           |
| <b>Equity</b>                     | <b>5.9</b> | <b>1.9</b> | <b>-7.2</b> | <b>68.9</b> | <b>101.0</b> | <b>176.0</b> | <b>251.7</b> | <b>254.5</b> |
| Equity ratio                      | 20%        | 3%         | neg.        | 57%         | 39%          | 53%          | 61%          | 51%          |
| <b>Financial Debt</b>             | <b>0.0</b> | <b>5.9</b> | <b>10.9</b> | <b>0.9</b>  | <b>100.9</b> | <b>100.9</b> | <b>100.9</b> | <b>180.9</b> |
| % of total liabilities            | 0%         | 11%        | 18%         | 1%          | 39%          | 30%          | 24%          | 36%          |
| Payables                          | 2.3        | 8.5        | 6.0         | 3.2         | 4.6          | 6.9          | 9.8          | 13.8         |
| % of sales                        | nm         | nm         | nm          | 21%         | 12%          | 10%          | 11%          | 11%          |

Source: APEX Group, Pareto Securities

## Cash flow considerations

APEX has a cash flow profile that will visibly change in the next few years. From today's perspective, the focus on project development as well as on EPC is cash friendly. Typically, the company receives down payments with the signing of EPC contracts, which allows them to cover the initial investments. During the contract period, APEX receives further milestone payments depending on the progress of the project. Overall, the EPC phase is rather cash flow neutral for APEX. The management's statement that the company has a current cash burn of only <EUR 1m/month, which would mean a financing requirement of approximately EUR 6m for the second half of the year, and thus about EUR 2m less than we had expected. However, based on management's mid-term ambitions, we see the company ahead of several cash-intensive investments with regard to the company's project pipeline for its own operations and rather for third party developments. Very immediate are the expected investments in connection with the rebus project to be mentioned. For the capacity extension in Rostock-Laage we assume a capex need of EUR 20m. While the H<sub>2</sub>ERO project is 80% funded by IPCEI the funding gap is around EUR 30m. Furthermore, we assume an additional working capital requirement of EUR 15-20m (c.10%) during the project tenure. As part of an IPCEI program, the related investments or procurements must first made before the associated grants can be obtained. In our estimates we have incorporated corresponding outflows from FY 2024e.

An important measure to secure funding could be the sale of up to 49% of the project SPVs. As soon as the company has developed a project and ideally also has already a PPA in place that offers the potential investor the prospect of secured returns, we believe APEX can attract funding partners. We believe that the rebus project but also in particular the Lubmin projects should attract high interest from investors. According to our base case scenario and assuming funding needs for the Lubmin project, APEX requires external financing in the course of H1 2024e. For the sake of simplicity, we have assumed debt financing in the

amount of EUR 100-180m until FY 2027e. However, due to the fact, that APEX will remain loss making at EBITDA level until FY 2024e/25e, a capital increase is more likely than bank financing on the group level.

**Cash flow key items**

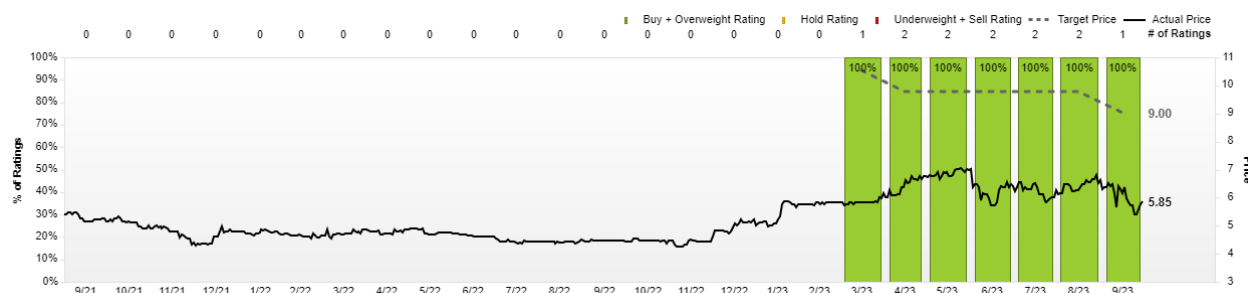
| Cash Flow                           | 2020        | 2021        | 2022        | 2023e       | 2024e       | 2025e        | 2026e        | 2027e        |
|-------------------------------------|-------------|-------------|-------------|-------------|-------------|--------------|--------------|--------------|
| <b>Operating Cash Flow</b>          | <b>3</b>    | <b>(8)</b>  | <b>(15)</b> | <b>(18)</b> | <b>(9)</b>  | <b>(9)</b>   | <b>(4)</b>   | <b>15</b>    |
| % of sales                          | 3356%       | -4551%      | -397%       | -115%       | -22%        | -13%         | -4%          | 12%          |
| <b>Capex</b>                        | <b>(14)</b> | <b>(11)</b> | <b>(2)</b>  | <b>(17)</b> | <b>(70)</b> | <b>(95)</b>  | <b>(145)</b> | <b>(105)</b> |
| % of sales                          | 19072%      | 6095%       | 41%         | 109%        | 176%        | 142%         | 163%         | 86%          |
| <b>FCF</b>                          | <b>(12)</b> | <b>(27)</b> | <b>(19)</b> | <b>(35)</b> | <b>(79)</b> | <b>(104)</b> | <b>(149)</b> | <b>(90)</b>  |
| % of sales                          |             |             |             |             |             |              |              |              |
| Cash flow from financing activities | 14          | 28          | 19          | (10)        | 100         | -            | -            | 80           |
| Increase in equity                  | -           | -           | -           | 87          | -           | -            | -            | -            |
| <b>Financial cash flow</b>          | <b>14</b>   | <b>28</b>   | <b>19</b>   | <b>77</b>   | <b>100</b>  | <b>-</b>     | <b>-</b>     | <b>80</b>    |

Source: APEX Group, Pareto Securities

# Valuation

We initiate coverage of APEX with a TP of EUR 13.90 and a Buy rating. Our TP is based on a blended average of EV/Sales multiples of the closest peers (Everfuel and Lhyfe) and our DCF model, with both equal weighted. Despite the negative earnings and cash flows in the near-term future, we believe the DCF model is still best suited to account for the long-term perspectives. Bear in mind that APEX has a capital-intensive expansion strategy in order to realize a remarkable pipeline of >700 MW of own operated hydrogen plants. The multiples of the closest peers also fit well to assess APEX relative to other, listed companies with a very similar business approach.

## APEX recommendation chart



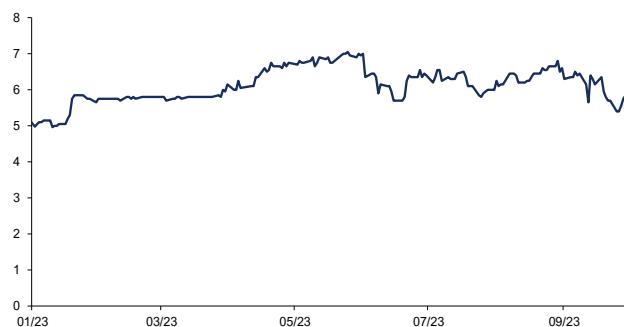
Source: FactSet

## PAS estimates vs consensus

|               | Pareto | 2023e Cons. | Delta | Pareto | 2024e Cons. | Delta  | Pareto | 2025e Cons. | Delta  |
|---------------|--------|-------------|-------|--------|-------------|--------|--------|-------------|--------|
| Revenues      | 16     | 15          | 3.2%  | 40     | 50          | -19.9% | 67     | 75          | -10.9% |
| EBITDA        | -9     | -6          | nm    | -4     | -1          | nm     | 6      | 6           | -1.4%  |
| EBITDA margin | neg.   | neg.        | nm    | neg.   | neg.        | nm     | 8.3%   | 7.5%        | nm     |
| EBIT          | -11    | -7          | nm    | -7     | -2          | nm     | 2      | 3           | nm     |
| EBIT margin   | neg.   | neg.        | nm    | neg.   | neg.        | nm     | 2.3%   | 4.6%        | nm     |
| EBT           | -11    | -8          | nm    | -8     | -3          | nm     | -5     | 0           | nm     |
| Net result    | -11    | -8          | nm    | -8     | -3          | nm     | -5     | 0           | nm     |
| EPS           | -0.30  | -0.21       | nm    | -0.22  | -0.08       | nm     | -0.14  | 0.01        | nm     |

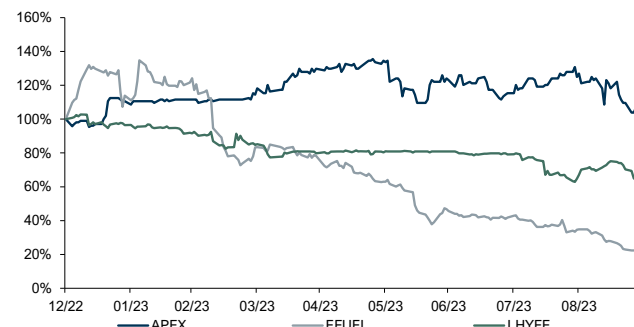
Source: FactSet, Pareto Securities

## APEX share price performance ytd



Source: FactSet, Pareto Securities

## ... vs closest Peers Everfuel and Lhyfe



Source: FactSet, Pareto Securities

## DCF model

We are using a three phase DCF model.

In phase I we have made detailed forecasts of the future free cash flows until FY 2027e. This is also the phase, where the APEX will have major investments in the projects for its own operations (H<sub>2</sub>ERO and Lubmin), which are expected to burden cash flow and require additional external funding. However, this is very common for a cleantech company in the early stage, where scaling up the business volume negatively impacts profitability and cash flow.

In phase II we are continuously increasing the share of its own operations business, which is reflected in significantly higher revenues and margins, compared to the years before.

In phase III, we assume a normalized EBIT margin of 15%, a more pronounced capex ratio of 5% and a perpetual growth rate of 4%.

In our calculation, we apply a long-term growth rate of 4%, reflecting the high market growth and a WACC of 7.1%. The WACC is a result of a risk-free rate of 3% and equity risk premium of 5% and a beta of 1.2.

We derive a rounded fair value of EUR 9.20 from our DCF model, which implies an upside potential of close to 60%. However, we believe the DCF model alone does not reflect the share price potential of APEX as the near-term cash generation is heavily impacted by the intensive investment program, resulting in negative FCF in until FY 2027e. From today's point of view, the DCF model is too much dependent upon the company's very long-term cash flows.

### DCF model

| EURm                                   | Phase I |        |        |         |         | Phase II       |                     |        |                    |        | Phase III |
|----------------------------------------|---------|--------|--------|---------|---------|----------------|---------------------|--------|--------------------|--------|-----------|
|                                        | 2023e   | 2024e  | 2025e  | 2026e   | 2027e   | 2028e          | 2029e               | 2030e  | 2031e              | 2032e  |           |
| Revenues                               | 15.6    | 39.8   | 66.7   | 88.8    | 122.4   | 194.0          | 216.9               | 269.3  | 322.0              | 370.2  |           |
| growth rate                            | -       | 155.3% | 67.7%  | 33.1%   | 37.8%   | 33.2%          | 28.7%               | 24.1%  | 19.6%              | 15.0%  |           |
| EBIT                                   | (10.8)  | (7.4)  | 1.5    | 2.2     | 9.3     | 33.1           | 40.0                | 45.0   | 51.1               | 55.5   |           |
| EBIT margin                            | -69.2%  | -18.7% | 2.3%   | 2.5%    | 7.6%    | 17.1%          | 18.4%               | 16.7%  | 15.9%              | 15.0%  |           |
| Tax                                    | -       | -      | -      | -       | -       | (9.3)          | (11.2)              | (12.6) | (14.3)             | (15.6) |           |
| Tax rate                               | 0%      | 0%     | 0%     | 0%      | 0%      | 28%            | 28%                 | 28%    | 28%                | 28%    |           |
| Depr. & Amortization                   | 2.0     | 3.1    | 4.0    | 6.0     | 12.0    | 14.3           | 13.4                | 15.0   | 17.0               | 18.4   |           |
| % of sales                             | 13.1%   | 7.7%   | 6.0%   | 6.8%    | 9.8%    | 7.4%           | 6.2%                | 5.6%   | 5.3%               | 5.0%   |           |
| Capex                                  | (17.0)  | (70.0) | (95.0) | (145.0) | (105.0) | (9.7)          | (10.8)              | (13.5) | (16.1)             | (18.5) |           |
| % of sales                             | 109.0%  | 175.9% | 142.3% | 163.2%  | 85.8%   | 5.0%           | 5.0%                | 5.0%   | 5.0%               | 5.0%   |           |
| Change in WC                           | (11.1)  | (6.1)  | (8.0)  | (5.4)   | 0.3     | (2.4)          | (4.0)               | (9.2)  | (9.2)              | (8.5)  |           |
| % of sales                             | 71.4%   | 15.4%  | 12.0%  | 6.1%    | -0.3%   | 1.2%           | 1.8%                | 3.4%   | 2.9%               | 2.3%   |           |
| Free Cash Flow                         | (36.9)  | (80.5) | (97.4) | (142.2) | (83.4)  | 26.1           | 27.4                | 24.8   | 28.4               | 31.4   | 1,051     |
| growth rate                            | nm      | nm     | 21.0%  | 46.0%   | -41.4%  | nm             | 4.8%                | -9.3%  | 14.6%              | 10.6%  | 4.0%      |
| Present Value FCF                      | (36.3)  | (73.9) | (83.5) | (113.8) | (62.3)  | 18.2           | 17.8                | 15.1   | 16.1               | 16.7   | 557       |
| Period of intensive investment program |         |        |        |         |         |                |                     |        |                    |        |           |
| PV Phase I                             |         | -370   |        |         |         | Risk free rate | 3.00%               |        | Targ. equity ratio |        | 65%       |
| PV Phase II                            |         | 84     |        |         |         | Premium Equity | 5.00%               |        | Beta               |        | 1.2       |
| PV Phase III                           |         | 557    |        |         |         | Premium Debt   | 2.00%               |        | WACC               |        | 7.1%      |
| Enterprise value                       |         | 271    |        |         |         | Sensitivity    | Growth in phase III |        |                    |        |           |
| - Net Debt (Cash)                      |         | -66    |        |         |         |                | 3.0%                | 3.5%   | 4.0%               | 4.5%   | 5.0%      |
| - Pension Provisions                   |         | 0      |        |         |         | W              | 6.4%                | 8.7    | 11.3               | 15.0   | 20.7      |
| - Minorities & Peripherals             |         | 0      |        |         |         | A              | 6.8%                | 6.9    | 9.0                | 11.8   | 15.8      |
| + MV of financial assets               |         |        |        |         |         | C              | 7.1%                | 5.4    | 7.1                | 9.3    | 12.3      |
| - Paid-out dividends for last FY       |         | 0      |        |         |         | C              | 7.5%                | 4.2    | 5.6                | 7.3    | 9.6       |
| +/- Other EV items                     |         |        |        |         |         |                | 7.8%                | 3.2    | 4.3                | 5.8    | 7.6       |
| Equity value                           |         | 338    |        |         |         |                |                     |        |                    |        |           |
| Number of shares                       |         | 36.4   |        |         |         |                |                     |        |                    |        |           |
| Value per share (€)                    |         | 9.28   |        |         |         |                |                     |        |                    |        |           |
| Current Price (€)                      |         | 5.90   |        |         |         |                |                     |        |                    |        |           |
| Upside                                 |         | 57%    |        |         |         |                |                     |        |                    |        |           |

Source: Pareto Securities

## Peer group

The following table provides a broad overview of listed European IPPs and cleantech companies. However, we believe that only a limited number of these companies can be considered as direct peers of APEX, such as Everfuel (EFUEL NO) and Lyhfe (LHYFE FR), which have a very similar business model and are heavily focused on development of green hydrogen projects. Other companies active in the field of renewable energies in general have different earnings and cash flow profiles, as they operate in already mature segments such as PV and wind.

### Peer group comparison

| Company                                | CUR | MarketCap | EV/EBIT      |              |              | EV/EBITDA   |             |              | EV/Sales     |             |             |
|----------------------------------------|-----|-----------|--------------|--------------|--------------|-------------|-------------|--------------|--------------|-------------|-------------|
|                                        |     |           | 2023e        | 2024e        | 2025e        | 2023e       | 2024e       | 2025e        | 2023e        | 2024e       | 2025e       |
| 7C Solarparken AG                      | EUR | 264       | 18.1x        | 17.4x        | 14.8x        | 7.3x        | 6.9x        | 6.3x         | 6.3x         | 6.0x        | 5.4x        |
| Arise AB                               | DKK | 1,535     | 5.6x         | 5.4x         | 3.8x         | 4.5x        | 4.4x        | 3.3x         | 3.0x         | 2.9x        | 2.1x        |
| clearvise AG                           | EUR | 161       | 23.3x        | 66.4x        | 32.0x        | 8.1x        | 10.2x       | 7.5x         | 6.8x         | 6.8x        | 5.3x        |
| Cloudberry Clean Energy ASA            | NOK | 3,205     | 12.2x        | 14.8x        | 14.1x        | 9.6x        | 10.3x       | 9.5x         | 6.4x         | 6.4x        | 5.7x        |
| EnergieKontor AG                       | EUR | 1,053     | 15.3x        | 14.4x        | 13.4x        | 12.1x       | 11.3x       | 10.3x        | 5.1x         | 4.8x        | 4.4x        |
| Everfuel A/S                           | NOK | 716       | -2.7x        | -7.9x        | -9.0x        | -3.4x       | -15.8x      | 18.2x        | 13.5x        | 3.2x        | 3.3x        |
| Green Hydrogen Systems A/S             | DKK | 1,453     | -3.1x        | -6.0x        | -10.2x       | -4.5x       | -10.0x      | -25.9x       | 9.0x         | 4.7x        | 2.3x        |
| Greencoat Renewables Plc               | EUR | 1,091     | 17.2x        | 17.3x        | 17.7x        | 18.7x       | 20.8x       | 19.8x        | 15.6x        | 15.8x       | 15.3x       |
| HydrogenPro ASA                        | NOK | 1,196     | -10.1x       | -17.5x       | -32.3x       | -13.0x      | -31.8x      | 17.9x        | 1.6x         | 1.1x        | 0.5x        |
| Lhyfe SA                               | EUR | 262       | -6.5x        | -8.2x        | -13.1x       | -7.2x       | -10.2x      | -21.1x       | 240.0x       | 28.4x       | 8.6x        |
| NEL ASA                                | NOK | 13,722    | -12.9x       | -18.4x       | -37.4x       | -18.9x      | -30.7x      | -211.6x      | 5.9x         | 4.5x        | 3.1x        |
| Neoen SA                               | EUR | 4,064     | 24.7x        | 25.2x        | 21.8x        | 15.2x       | 14.7x       | 13.1x        | 12.3x        | 11.7x       | 10.4x       |
| Orsted                                 | DKK | 150,609   | 16.6x        | 15.0x        | 14.3x        | 9.2x        | 8.9x        | 8.6x         | 2.2x         | 2.3x        | 2.4x        |
| Scatec ASA                             | NOK | 9,670     | 15.0x        | 13.3x        | 12.6x        | 9.5x        | 8.7x        | 8.4x         | 7.4x         | 6.4x        | 6.0x        |
| Solaria Energia y Medio Ambiente, S.A. | EUR | 1,761     | 17.5x        | 16.3x        | 14.8x        | 14.3x       | 12.8x       | 11.4x        | 12.7x        | 11.0x       | 9.6x        |
| thyssenkrupp nucera AG & Co. KGaA      | EUR | 2,328     | 156.3x       | -93.6x       | 52.0x        | 104.2x      | -186.4x     | 34.3x        | 2.3x         | 1.7x        | 1.4x        |
| Volitalia SA                           | EUR | 1,294     | 16.9x        | 15.7x        | 14.7x        | 10.4x       | 9.8x        | 9.5x         | 5.0x         | 5.0x        | 5.0x        |
| <b>Median</b>                          |     |           | <b>15.3x</b> | <b>14.4x</b> | <b>14.1x</b> | <b>9.2x</b> | <b>8.7x</b> | <b>9.5x</b>  | <b>6.4x</b>  | <b>5.0x</b> | <b>5.0x</b> |
| <b>APEX</b>                            |     |           | <b>neg</b>   | <b>neg</b>   | <b>neg</b>   | <b>neg</b>  | <b>neg</b>  | <b>42.4x</b> | <b>11.0x</b> | <b>5.3x</b> | <b>3.5x</b> |

Source: FactSet, Pareto Securities

We consider the EV/Sales multiples of Everfuel and Lhyfe for FY 2024e and FY 2025e. Normally, we would refrain from using only the EV/Sales multiple as the sole valuation parameter. However, in this case, the use of other EV multiples is not possible due to the losses expected to be occurred.

We apply an EV/EBITDA for FY 2024e of 15.8x and for FY 2025e of 5.9x. From the average, we derive a fair value of EUR 23.20 per share. However, to reflect the risks associated with uncertainties regarding the future earnings, we apply a discount of 20% to our peer group-derived fair value, arriving thus at EUR 18.52 per share.

# Appendix

## Management



**Peter Rössner, CEO**

- CEO since 2022. Previously CFO (2019-2022) and advisor in first fundraising round (2017/18)
- Various positions in banking
- Exit of self-founded company with > 60 FTE
- Board member of Hydrogen Energy Cluster MV
- Member of the National Energy Committee of the German Economic Council



**Bert Althaus, CFO**

- Was appointed CFO as of October 1, 2023
- Prior to that CFO at Autodoc SE (since 2021) and CFO at Spark Network SE (2019-2021)
- From 2013 to 2019 Bert Althaus served as Senior Vice President Finance at Home24 SE
- Bert Althaus has a degree in business management from the Friedrich Schiller University Jena



**Bojan Petrov, COO**

- Degree in Mechanical Engineering
- 10+ years of experience in technical sales
- Held various management positions in the engineering sector



**Gunnar Krüger, CBDO**

- Degree in Business Administration, focus on project and corporate financing
- 20+ years of experience in international renewable energies business
- Successfully developed businesses in photovoltaik, wind, concentrated solar power & BioDiesel (Fame)



**Dr. Peter Sponholz, CRO**

- PhD at the Leibniz Institute for Catalysis
- 10+ years of experience in the Hydrogen sector
- Fostered breakthrough technologies (i.e Liquid Organic Hydrogen Carrier)

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| <b>PROFIT &amp; LOSS (fiscal year) (EURm)</b> | <b>2018</b> | <b>2019</b> | <b>2020</b> | <b>2021</b> | <b>2022</b> | <b>2023e</b> | <b>2024e</b> | <b>2025e</b> |
|-----------------------------------------------|-------------|-------------|-------------|-------------|-------------|--------------|--------------|--------------|
| Revenues                                      | -           | -           | 0           | 0           | 4           | 16           | 40           | 67           |
| EBITDA                                        | -           | -           | (2)         | (6)         | (9)         | (9)          | (4)          | 6            |
| Depreciation & amortisation                   | -           | -           | (0)         | (1)         | (1)         | (2)          | (3)          | (4)          |
| EBIT                                          | -           | -           | (2)         | (7)         | (11)        | (11)         | (7)          | 2            |
| Net interest                                  | -           | -           | (1)         | (2)         | (3)         | (0)          | (1)          | (7)          |
| Other financial items                         | -           | -           | -           | -           | -           | -            | -            | -            |
| Profit before taxes                           | -           | -           | (3)         | (8)         | (14)        | (11)         | (8)          | (5)          |
| Taxes                                         | -           | -           | (0)         | (1)         | 1           | -            | -            | -            |
| Minority interest                             | -           | -           | 0           | 0           | 0           | -            | -            | -            |
| Net profit                                    | -           | -           | (4)         | (9)         | (13)        | (11)         | (8)          | (5)          |
| EPS reported                                  |             |             | (0.18)      | (0.45)      | (0.64)      | (0.30)       | (0.22)       | (0.14)       |
| EPS adjusted                                  |             |             | (0.18)      | (0.45)      | (0.64)      | (0.30)       | (0.22)       | (0.14)       |
| DPS                                           | -           | -           | -           | -           | -           | -            | -            | -            |
| <b>BALANCE SHEET (EURm)</b>                   | <b>2018</b> | <b>2019</b> | <b>2020</b> | <b>2021</b> | <b>2022</b> | <b>2023e</b> | <b>2024e</b> | <b>2025e</b> |
| Tangible non current assets                   | -           | -           | 25          | 35          | 34          | 47           | 110          | 194          |
| Other non-current assets                      | -           | -           | 2           | 3           | 4           | 5            | 9            | 16           |
| Other current assets                          | -           | -           | 3           | 16          | 24          | 26           | 33           | 44           |
| Cash & equivalents                            | -           | -           | 1           | 1           | 0           | 42           | 103          | 80           |
| Total assets                                  | -           | -           | 30          | 55          | 62          | 120          | 256          | 333          |
| Total equity                                  | -           | -           | 6           | 2           | (7)         | 69           | 101          | 176          |
| Interest-bearing non-current debt             | -           | -           | -           | 6           | 9           | 1            | 101          | 101          |
| Interest-bearing current debt                 | -           | -           | -           | -           | 2           | -            | -            | -            |
| Other Debt                                    | -           | -           | 24          | 47          | 58          | 50           | 54           | 56           |
| Total liabilities & equity                    | -           | -           | 30          | 55          | 62          | 120          | 256          | 333          |
| <b>CASH FLOW (EURm)</b>                       | <b>2018</b> | <b>2019</b> | <b>2020</b> | <b>2021</b> | <b>2022</b> | <b>2023e</b> | <b>2024e</b> | <b>2025e</b> |
| Cash earnings                                 | -           | -           | 2           | (15)        | (9)         | (29)         | (15)         | (17)         |
| Change in working capital                     | -           | -           | 1           | 7           | (6)         | 11           | 6            | 8            |
| Cash flow from investments                    | -           | -           | (15)        | (19)        | (4)         | (17)         | (70)         | (95)         |
| Cash flow from financing                      | -           | -           | 14          | 28          | 19          | 77           | 100          | -            |
| Net cash flow                                 | -           | -           | 1           | (0)         | (0)         | 42           | 61           | (24)         |
| <b>VALUATION (EURm)</b>                       | <b>2018</b> | <b>2019</b> | <b>2020</b> | <b>2021</b> | <b>2022</b> | <b>2023e</b> | <b>2024e</b> | <b>2025e</b> |
| Share price (EUR end)                         | 2.57        | 3.51        | 4.14        | 4.78        | 5.2         | 5.9          | 5.9          | 5.9          |
| Number of shares end period                   | -           | -           | 20          | 20          | 20          | 36           | 36           | 36           |
| Net interest bearing debt                     | -           | -           | (1)         | 5           | 11          | (41)         | (3)          | 21           |
| Enterprise value                              | -           | -           | 82          | 101         | 115         | 173          | 212          | 236          |
| EV/Sales                                      | -           | -           | -           | -           | 29.9        | 11.1         | 5.3          | 3.5          |
| EV/EBITDA                                     | -           | -           | -           | -           | -           | -            | -            | 42.6         |
| EV/EBIT                                       | -           | -           | -           | -           | -           | -            | -            | -            |
| P/E reported                                  | -           | -           | -           | -           | -           | -            | -            | -            |
| P/E adjusted                                  | -           | -           | -           | -           | -           | -            | -            | -            |
| P/B                                           | -           | -           | 14.0        | 49.8        | -           | 3.1          | 2.1          | 1.2          |
| <b>FINANCIAL ANALYSIS</b>                     | <b>2018</b> | <b>2019</b> | <b>2020</b> | <b>2021</b> | <b>2022</b> | <b>2023e</b> | <b>2024e</b> | <b>2025e</b> |
| ROE adjusted (%)                              | -           | -           | -           | -           | -           | -            | -            | -            |
| Dividend yield (%)                            | -           | -           | -           | -           | -           | -            | -            | -            |
| EBITDA margin (%)                             | -           | -           | -           | -           | -           | -            | -            | 8.3          |
| EBIT margin (%)                               | -           | -           | -           | -           | -           | -            | -            | 2.3          |
| NIBD/EBITDA                                   | -           | -           | 0.35        | (0.86)      | (1.17)      | 4.72         | 0.60         | 3.85         |
| EBITDA/Net interest                           | -           | -           | -           | -           | -           | -            | -            | -            |

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|        |                                                                                                                                     |
|--------|-------------------------------------------------------------------------------------------------------------------------------------|
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## Appendix A

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| Companies                   | No. of shares | Holdings in % |
|-----------------------------|---------------|---------------|
| Austevoll Seafood           | 1,052,265     | 0.52%         |
| Bonheur                     | 243,588       | 0.57%         |
| Pareto Bank                 | 16,118,770    | 23.08%        |
| Pexip Holding               | 806,595       | 0.77%         |
| Sparebank 1 Nord-Norge      | 5,012,421     | 4.99%         |
| Sparebank 1 SMN             | 2,944,385     | 2.27%         |
| Sparebank 1 SR-Bank         | 2,439,627     | 0.95%         |
| SpareBank 1 Østfold Akerhus | 1,217,140     | 9.82%         |
| SpareBank 1 Østlandet       | 6,936,633     | 6.53%         |
| Sparebanken Møre            | 566,833       | 1.15%         |
| Sparebanken Vest            | 8,719,665     | 7.95%         |
| SpareBank 1 Sørøst-Norge    | 2,757,852     | 4.37%         |

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Please find below an overview of material interests in shares held by employees in Pareto Securities AS, in companies where a recommendation has been produced or distributed by Pareto Securities AS. "By material interest" means holdings exceeding a value of NOK 50 000.

| Company                      | Analyst holdings* | Total holdings |
|------------------------------|-------------------|----------------|
| 2020 Bulkers                 | 0                 | 534            |
| 2G Energy                    | 0                 | 220            |
| ABB Ltd.                     | 0                 | 580            |
| Adevinta                     | 0                 | 19,950         |
| Aker ASA                     | 500               | 1,377          |
| Aker BP                      | 0                 | 11,563         |
| Aker Carbon Capture          | 0                 | 8,976          |
| Aker Horizons                | 0                 | 502,071        |
| Aker Solutions               | 0                 | 1,131          |
| AMSC ASA                     | 0                 | 3,600          |
| Aprila Bank ASA              | 0                 | 22,675         |
| AURELIUSEquity Opportunities | 0                 | 500            |
| Austevoll Seafood            | 0                 | 3,548          |
| Bakkafrost                   | 0                 | 600            |
| BB Biotech                   | 0                 | 460            |
| Belships                     | 0                 | 20,000         |
| Biolinvent                   | 0                 | 15,000         |
| BlueNord                     | 0                 | 1,000          |
| Bonheur                      | 0                 | 30,718         |
| Borregaard ASA               | 0                 | 518            |
| Bouvet                       | 0                 | 5,500          |
| BW Energy                    | 0                 | 83,427         |
| BW Offshore                  | 0                 | 3,000          |
| Cloudberry Clean Energy      | 0                 | 8,690          |
| Cool Company                 | 0                 | 5,000          |
| Crayon                       | 0                 | 6,042          |
| Dermapharm Holding SE        | 0                 | 750            |
| DNB                          | 0                 | 17,235         |
| DNO                          | 0                 | 70,391         |
| Edda Wind                    | 0                 | 5,000          |

| Company                      | Analyst holdings* | Total holdings |
|------------------------------|-------------------|----------------|
| Elkem                        | 0                 | 59,520         |
| Elmeria Group ASA            | 0                 | 36,565         |
| Embracer Group               | 0                 | 12,029         |
| Encavis AG                   | 0                 | 400            |
| Eneti                        | 0                 | 525            |
| Equinor                      | 0                 | 5,226          |
| Europris                     | 0                 | 17,718         |
| Evolution                    | 0                 | 52             |
| Flex LNG                     | 0                 | 895            |
| Frontline                    | 0                 | 12,300         |
| Gaming Innovation Group      | 0                 | 10,000         |
| Getinge                      | 0                 | 260            |
| Gjensidige Forsikring        | 519               | 3,540          |
| Grieg Seafood                | 0                 | 13,201         |
| Hafnia Ltd.                  | 0                 | 88,550         |
| HydrogenPro                  | 0                 | 4,222          |
| Høegh Autoliners             | 0                 | 10,923         |
| International Petroleum Corp | 0                 | 7,786          |
| Kahoot                       | 0                 | 9,268          |
| Kambi Group plc              | 0                 | 430            |
| Kinnevik AB                  | 0                 | 495            |
| Kiiron                       | 0                 | 12,314         |
| Kongsberg Gruppen            | 0                 | 490            |
| Konttron AG                  | 0                 | 350            |
| Leabank                      | 0                 | 16,355         |
| Lerøy Seafood Group          | 0                 | 114,350        |
| Lundin Mining Corp.          | 0                 | 652            |
| Morrow Bank                  | 0                 | 121,200        |
| Mowi                         | 0                 | 9,312          |
| MPC Container Ships          | 0                 | 3,950          |
| Multitude                    | 0                 | 2,443          |
| Mutar es SE & Co. KGaA       | 0                 | 433            |
| NorAm Drilling               | 0                 | 6,883          |
| NORBIT ASA                   | 0                 | 1,154          |
| Nordic Semiconductor         | 0                 | 10,277         |
| Norsk Hydro                  | 0                 | 77,351         |
| Norske Skog                  | 0                 | 85,606         |
| Northern Ocean               | 0                 | 8,400          |
| Norwegian Air Shuttle        | 0                 | 64,009         |
| Odjel Drilling               | 0                 | 2,186          |
| Okeanos Eco Tankers          | 0                 | 7,340          |
| Orkla                        | 0                 | 7,626          |
| Otovo ASA                    | 0                 | 35,400         |
| Panoro Energy                | 0                 | 34,533         |
| Pareto Bank                  | 0                 | 762,286        |
| PetroTal                     | 0                 | 74,000         |
| Pexip Holding                | 0                 | 806,595        |
| Protector Forsikring         | 0                 | 7,436          |
| PSI Software                 | 0                 | 300            |
| QleanAir                     | 0                 | 3,498          |
| Quantafuel                   | 0                 | 16,665         |
| REC Silicon                  | 0                 | 32,539         |
| SalMar                       | 0                 | 224            |
| Sandnes Sparebank            | 0                 | 2,500          |
| Scatec                       | 0                 | 20,129         |
| Seadrill Ltd                 | 0                 | 10,300         |
| Sem Offshore                 | 0                 | 2,000          |
| Solstad Offshore             | 0                 | 124,000        |
| Sparebank 1 Nord-Norge       | 725               | 6,744          |
| Sparebank 1 SMN              | 0                 | 6,023          |
| Sparebank 1 SR-Bank          | 0                 | 6,797          |
| SpareBank 1 Østlandet        | 1,100             | 1,100          |
| Sparebanken Møre             | 0                 | 1,080          |
| Sparebanken Sør              | 0                 | 15,000         |
| Sparebanken Vest             | 0                 | 966            |
| Standard Supply              | 0                 | 20,000         |
| Stolt-Nielsen                | 0                 | 3,500          |
| Stora Enso                   | 0                 | 1,396          |
| Storbrand                    | 100               | 2,600          |
| Storlytel                    | 0                 | 11,615         |
| Subsea 7                     | 0                 | 20,805         |
| Telenor                      | 0                 | 3,833          |
| TGS                          | 0                 | 10,595         |
| Thule Group                  | 0                 | 350            |
| Transocean                   | 0                 | 10,000         |
| Valaris                      | 0                 | 3,100          |
| Vestas Wind Systems          | 0                 | 1,225          |
| Viscom                       | 0                 | 1,300          |
| Vår Energi                   | 0                 | 230,193        |
| Wih. Wilhelmsen Holding      | 0                 | 229            |
| Yara                         | 0                 | 17,549         |
| Zaptec                       | 0                 | 17,870         |

This overview is updated monthly (last updated 15.09.2023).

\*Analyst holdings refers to positions held by the Pareto Securities AS analyst covering the company.

## Appendix B

Disclosure requirements in accordance with Article 6(1)(c)(iii) of Commission Delegated Regulation (EU) 2016/958

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B2Holding ASA  
Benchmark Holdings  
Bluewater Holding  
Borr Drilling  
Cadeler  
CCSFinansiering AS  
CEMAssys AS  
CERAFILTEC  
Clemens Kraft AS  
Cloudberry Clean Energy  
COOL Company  
DEAG Deutsche Entertainment AG  
Delight  
DOF  
Dolphin Drilling  
Edda Wind  
EDR Certified Origin Physical Gold Plc  
Eidesvik Offshore  
EIK Servicing AS  
Endur ASA  
Energy Drilling Pte. Ltd.  
Fertiberia Corporate S.L.U.  
First Camp Group  
Fishbase Group AS  
Floatel  
Fredrikstad Energi AS  
Freya ASA  
Golar LNG  
Grontvedt AS  
Hafnia Ltd.  
Hertha BSC GmbH & Co. KGaA  
Hospitality Invest  
House of Control  
Hydrogen Pro  
HORMANN Industries GmbH  
Idavang A/S  
Instabank ASA  
Keszler AS  
Klaveness Combination Carriers ASA  
KMC Properties  
Komplett Bank  
Kraft Bank  
Kron AS  
Krow Bidco AS  
Krus Smith  
LoneStar Group  
Magnora ASA  
Maha Energy  
Mime Petroleum  
Mintra Group  
Morrow Bank  
Mutares SE & Co. KGaA  
NorAm Drilling  
Nordic Unmanned  
Norco  
Norlandia Health & Care Group  
Norse Atlantic  
Northern Ocean  
OKEA  
Parito Bank  
PGS  
PHM Group Holding  
Prosafe  
Proximar Seafood  
PulPac AB  
Quality Living Residential AS  
ReFuels  
RelyOn Nutec A/S  
Salmon Evolution  
Scala Etendom  
Schletter International B.V.  
Seacrest Petroleum

Shamran Petroleum  
Skandia GreenPower  
Standard Supply  
Tasik Toba Subsea AS  
Treasure ASA  
Vantage Drilling International  
Viking Venture 28 AS  
Waldorff Production Ltd.  
Wattif EV  
wheel.me  
Ziton A/S

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Adtraction Group AB  
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Cinis Fertilizer AB  
Hanza AB  
Hexicon AB  
Linkfire A/S  
Media & Games Invest plc  
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Renewcell AB  
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Bonäsudden Holding AB (publ)  
Borglunda Fastighets AB  
Fleming Properties AB  
Halliseil Property Invest AB  
Korsängen Fastighets AB (publ)  
Krona Public Real Estate AB  
Logistri Fastighets AB  
Mälarsälen AB  
One Publicus Fastighets AB  
Origa Care AB (publ)  
Preservium Property AB

Members of the Pareto Group have entered into agreements concerning the inclusion of the company in question in Pareto Securities AB's research coverage universe with the following companies: None

This overview is updated monthly (last updated 18.09.2023).

## Appendix E

Disclosure requirements in accordance with Article 6(1)(c)(i) of Commission Delegated Regulation (EU) 2016/958

### Designated Sponsor

Pareto Securities acts as a designated sponsor for the following companies, including the provision of bid and ask offers. Therefore, we regularly possess shares of the company in our proprietary trading books. Pareto Securities receives a commission from the company for the provision of the designated sponsor services.

2G Energy AG  
ad pepper media International N.V.  
Biotech AG  
Biotech AG Pf.d.  
Cor estate Capital Holding S.A.  
Daldrup & Söhne AG  
DEMIRE AG  
DF Deutsche Forfait AG  
epigenomics AG  
Foris AG  
Gesco AG  
GFT Technologies SE  
Gigasat AG  
Heidelberg Pharma AG  
INTERSHOP Communications AG  
IVU Traffic AG  
Kontron AG  
Leifheit AG  
Logwin AG  
manz AG  
MAX Automation SE  
Merkur Privatbank AG  
Meta Wolf AG  
MLP SE  
MPC Container Ships ASA  
Muehlhahn AG  
Mutares SE & Co. KGaA  
OVB Holding AG  
ProCredit Holding AG  
Progress-Werk Oberkirch AG  
Pryme B.V.  
PSI AG  
Pyrum Innovations AG  
Salmones Camanchaca S.A.  
Seven Principles AG  
SHOP APOTHEKE EUROPE N.V.  
SMT Scharf AG  
Surteco AG  
Szygy AG  
TTL Beteiligungs- und Grundbesitz AG  
Uzin Utz SE  
VERIANOSSE  
Viscom AG  
WPU - Waste Plastic Upcycling AS

## Appendix F

Disclosure requirements in accordance with Article 6(1)(c)(iv) of Commission Delegated Regulation (EU) 2016/958

### Sponsored Research

Pareto Securities has entered into an agreement with these companies about the preparation of research reports and – in return – receives compensation.

2G Energy AG  
BayWa AG  
BB Biotech AG  
Biotech AG  
Biotech AG Pf.d.  
Clig Digital AG  
Daldrup & Söhne AG  
Delight  
Dermapharma Holding SE  
Enapter AG  
epigenomics AG  
Exprès2ion Biotech Holding AB  
Gesco AG  
GFT Technologies SE  
Gigasat AG  
Heidelberg Pharma AG  
Hypoport SE  
INTERSHOP Communications AG  
Kontron AG  
Leifheit AG  
Logwin AG  
MAX Automation SE  
Merkur Privatbank AG  
MLP SE  
Mutares SE & Co. KGaA  
Mynaric AG  
OHB SE  
ProCredit Holding AG  
Progress-Werk Oberkirch AG  
PSI AG  
Siegfried Holding AG  
SMT Scharf AG  
Surteco AG  
Szygy AG  
Viscom AG

This overview is updated monthly (last updated 15.09.2023).

## Appendix C

Disclosure requirements pursuant to the Norwegian Securities Trading Regulation § 3-11 (4)

### Distribution of recommendations

| Recommendation | % distribution |
|----------------|----------------|
| Buy            | 74%            |
| Hold           | 24%            |
| Sell           | 2%             |

### Distribution of recommendations (transactions\*)

| Recommendation | % distribution |
|----------------|----------------|
| Buy            | 94%            |
| Hold           | 6%             |
| Sell           | 0%             |

\* Companies under coverage with which Pareto Securities Group has on-going or completed public services in the previous 12 months

This overview is updated monthly (last updated 13.09.2023).