



ERIK PENSER BANK

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Advanced Soltech Sweden AB

Unique exposure to China's green transition

Appealing exposure to renewable energy generation

China is undergoing a shift towards renewable energy sources, with the aim of reducing greenhouse gases and decrease its dependency on fossil fuels, and solar power is a central component of this. At the same time, electricity demand will continue to increase structurally as electrification accelerates. China is already the world's largest photovoltaic market, and Advanced Soltech Sweden AB (ASAB) offers a unique exposure to this.

Acceleration in installed capacity in the coming years

Thanks to new financing, there is room for capacity expansion to take off in the coming years. The aim is to expand installed capacity to 1,000 MW by the end of 2026, from 252 MW as of H1 2023. ASAB's model is scalable and not tied to a specific technology, but the entry barriers remain high on account of its particularly capital-intensive business model. Fixed tariffs on electricity spell stable revenues, while the capital-intensive nature of the business implies high margins, and long-term cash flow generation is thus both high and offers decent visibility.

We initiate with a fair value of SEK 14–15

We consider ASAB a power producer and thus compare it with a group of international power producers. Given a justified EV/EBIT of 18x – which stems from comparing the total of EBIT growth and EBIT margin with the peer group – we arrive at a fair value of SEK 14–15. We apply a discount to the peer group to account for ASAB being in the midst of raising capital, as well as for its size, and its dependence on a single market. Once the new financing is secured and as capacity expansion continues to accelerate, we expect the discount to narrow. We consider our estimates conservative and, given its new financial structure, the company should be able to secure local financing at attractive levels, prompting a significant increase in the investment level, and thus its growth, relative to our estimates.

Estimate changes			Forecasts (SEKm)				Valuation and risk														
	23e	24e	25e	2022	2023e	2024e	2025e	Fair value	SEK 14,0 – 15,0												
Total revenues	-	-	-	204	244	274	284	Share price	SEK 9,2												
EBIT, adj.	-	-	-	Growth	33%	20%	12%	4%	Risk level	Medium											
EPS, adj.	-	-	-	EBITDA, adj.	149	180	206	212	<div style="background-color: #006633; color: white; padding: 2px;">12-mth share price development</div>												
<div style="background-color: #006633; color: white; padding: 2px;">Coming events</div>			EBIT, adj.	79	104	122	126														
			EPS, adj.	-0,7	-0,3	0,9	0,9														
<div style="background-color: #006633; color: white; padding: 2px;">Company details (SEKm)</div>			EPS growth, adj.	N.m.	N.m.	N.m.	7%														
			Equity per share	12,5	10,9	11,8	12,8														
Q3 - report	16 November 2023			Dividend per share	0,0	0,0	0,0	0,0													
Number of shares	64m			EBIT margin	50,6%	52,5%	61,0%	60,0%													
Market capitalisation	583			ROE, adj.	Neg.	Neg.	7,8%	7,7%													
Net debt	1 111			ROCE, adj.	6,7%	6,2%	6,9%	7,2%													
EV	1 694			EV/Sales	8,3x	7,0x	6,2x	6,0x													
Free float	80%			EV/EBITDA	11,4x	9,4x	8,2x	8,0x													
Daily trading volume, average	24k			EV/EBIT	21,4x	16,4x	13,9x	13,4x													
Bloomberg Ticker	ASAB SS EQUITY			P/E, adj.	-	-	10,3x	9,7x													
<div style="background-color: #006633; color: white; padding: 2px;">Analyst</div>			Price/book value	1,5x	0,8x	0,8x	0,7x	<div style="background-color: #006633; color: white; padding: 2px;">Conflicts of interest</div> <table border="1"> <thead> <tr> <th></th> <th>Yes</th> <th>No</th> </tr> </thead> <tbody> <tr> <td>Market maker</td> <td>✓</td> <td></td> </tr> <tr> <td>Certified adviser</td> <td></td> <td>✓</td> </tr> <tr> <td>Transactions, 12 mth</td> <td></td> <td>✓</td> </tr> </tbody> </table>			Yes	No	Market maker	✓		Certified adviser		✓	Transactions, 12 mth		✓
				Yes	No																
			Market maker	✓																	
Certified adviser		✓																			
Transactions, 12 mth		✓																			
FCF yield	-	-	18%	-																	
Net debt/EBITDA	6,4x	6,0x	4,5x	4,4x																	

Investment case

Appealing exposure to renewable energy generation: Given its goal to reduce greenhouse gases and decrease its dependency on fossil fuels, China is undergoing a shift towards renewable energy sources, of which solar power is a central component. At the same time, electricity demand will continue to increase structurally as electrification accelerates. China is already the world's largest photovoltaic (solar) market, and ASAB offers a unique exposure to this.

Solid market position provides scalability: As it buys in panels from third parties and subcontracts out the installation, the company has what we consider a scalable business model. The availability of capital on attractive financing terms is a limiting factor, but thanks to the new financial structure now in place, its access to capital increases, allowing for the acceleration of installed capacity. We see considerable potential for it to accelerate capacity installation from 2024 thanks to new financing. Its goal is to reach 1,000 MW in installed capacity by the end of 2026, from 252 MW as of the end of H1 2023.

Stable revenues, low risk on the cost side, and high entry barriers: Owing to price controls, the electricity price – which steers ASAB's revenues – has historically been relatively stable. At the same time, we do not see anything that could significantly change the cost base. The business model is capital intensive, creating high entry barriers, and thanks to the stable revenues, we anticipate margins staying put at a high level. The business model is not tied to a specific technology, and the scalability and stability in earnings thus allows for decent visibility into the long-term cash flow generation.

We consider our estimates conservative: Given its new financial structure, the company should be able to secure local financing at attractive terms, which should significantly increase the investment level, and thus its growth. The scalable business model allows for a much higher rate of investment than we currently apply in our model.

Company profile

ASAB is an electricity producer that finances, installs, owns, and operates photovoltaic systems on customers' roofs in China. It then sells the electricity it produces from these systems to the company operating the building in question. Its business idea is to offer industrial, trade, and public administration customers a simple and stress-free method to replace a sizeable amount of their electricity usage with locally produced solar energy, at a discount to the price of electricity from the grid.

ASAB was founded as a joint venture between Swedish solar energy company Soltech Energy Sweden AB (publ) and Chinese solar panel producer Advanced Solar Power Hangzhou (ASP). The company offers solar energy as a service, with the photovoltaic systems installed by a local network of solar panel fitters and retailers in China. The company is responsible for ensuring the financing of its activities. ASAB's headquarters are in Stockholm, but it operates exclusively in China.

Valuation

We value ASAB using a combination of relative and absolute models. Our relative valuation compares ASAB with a group of international power producers. ASAB's business model is capital intensive, providing high margins, and we see ASAB as a power producer rather than a solar systems installer.

We calculate our justified EV/EBIT multiple by creating a measure of value creation, which we calculate as the total of EBIT growth and EBIT margin. We then compare this measure with the peer group and thus arrive at a justified multiple. The correlation between our measure of value creation and EV/EBIT is particularly high. We arrive at a justified multiple of 18x and then apply a 25% discount to this to account for the financing situation and ASAB's dependence on a single market. We complement this with a DCF analysis that uses a WACC of 11%, long-term growth of 4%, and a long-term EBIT margin of 45%. We arrive at a fair value of SEK 14–15.

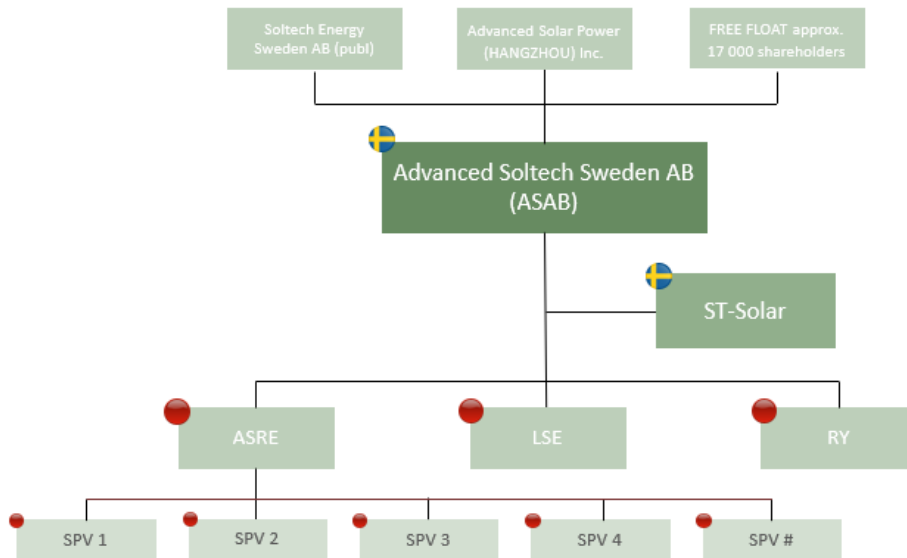
Company profile and history

Advanced Soltech (ASAB) is an electricity producer that finances, installs, owns, and operates photovoltaic systems on customers' roofs in China. It then sells the electricity it produces from these systems to the company operating the building in question. Its business idea is to offer industrial, trade and public administration customers a simple and stress-free method to replace a sizeable amount of their electricity usage with locally produced solar energy, at a discount to the price of electricity from the grid.

ASAB was founded as a joint venture between Swedish solar energy company Soltech Energy Sweden AB (publ) and Chinese solar panel producer Advanced Solar Power Hangzhou (ASP). The company offers solar energy as a service (see below) and uses a local network of solar panel fitters and retailers in China to install its photovoltaic systems. The company is responsible for ensuring the financing of its activities.

The company's headquarters are in Stockholm. The company comprises ST-Solar Holding AB along with wholly owned Chinese subsidiaries Advanced Soltech Renewable Energy (ASRE), Longrui Solar Energy (LSE), and Suqian Ruiyan New Energy (RY), plus these entities' directly or indirectly owned subsidiaries. In total, the group has 69 subsidiaries in China.

ASAB's group structure



Source: Company, EPB

Examples of ASAB's products



Source: Company, EPB

As of 30 June 2023, ASAB held a portfolio of 176 electricity-producing photovoltaic systems with a total capacity of 252 MW. Beyond these, it had a pipeline at the end of June 2023 that represented total capacity of 118 MW undergoing processing. On top of that, it had signed contracts corresponding to 60 MW as of the same date.

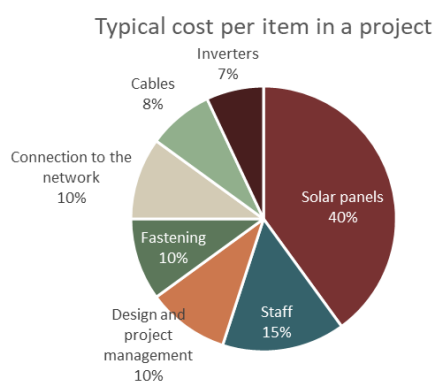
Photovoltaic systems are based on two solar panel technologies: silicon and CdTe-type thin film. Two-thirds of its total installed capacity is silicon and the other third is CdTe.

Its photovoltaic systems are concentrated on five Chinese provinces: Zhejiang, Jiangsu, Anhui, Jiangxia, and Fujian. ASAB is not restricted to these provinces, but there are several reasons why these regions are suitable. They have high electricity prices and are densely populated, which means limited room for solar energy on the land. Moreover, they have large industries with substantial electricity needs and for which a small discount on the grid price can have a sizeable impact on their electricity costs. Solar radiation is sufficiently high to achieve good economics. Finally, the air quality is often poor in these regions, meaning strong local interest in preventative measures.

Photovoltaic systems concentrated to five provinces...
 ...of which Zhejiang is the largest, with 109 MW



Source: Company, EPB



Source: Company, EPB

ASAB's customers are chiefly small and medium-sized companies and local authorities with considerable energy needs and large unused roof areas. Its customers operate across many industries, contributing to ASAB's portfolio diversification. This diversification of customers across different sectors reduces the risk of significant deficiencies in the company's project portfolio. ASAB's customers tend to have extensive activities where a large roof area is a prerequisite.

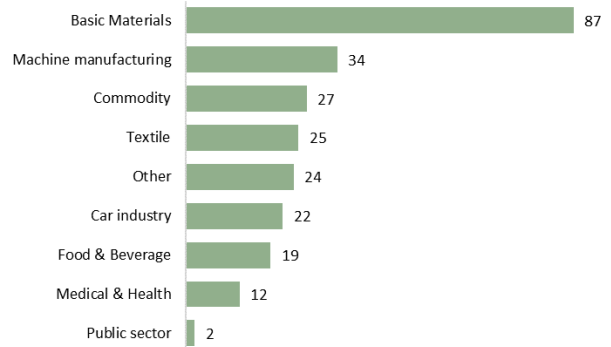
Based on installed capacity as of 30 June 2023, the customer base can be split into state-owned (14%) and private sector (86%), or into listed (10%) and unlisted companies (90%).

Installed capacity in MWhas expanded rapidly from the start



Source: Company, EPB

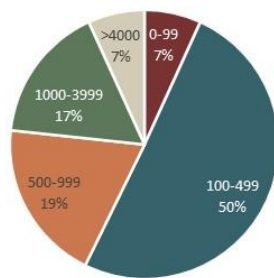
Customers operate across a range of industries



Source: Company, EPB

Small and medium-sized companies represent the majority of customers

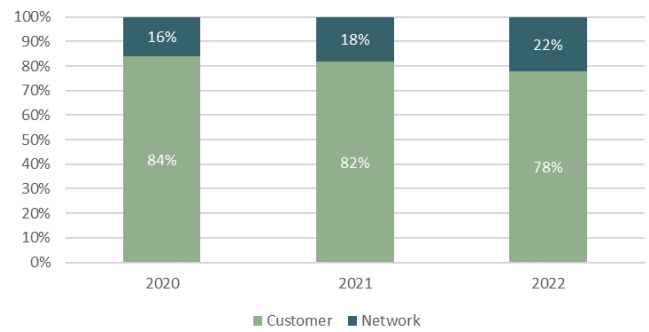
ASAB customers by number of employees



Source: Company, EPB

Share of electricity sold to the grid increased in 2022

Sold electricity split by customer and network



Source: Company, EPB

Solar energy as a service

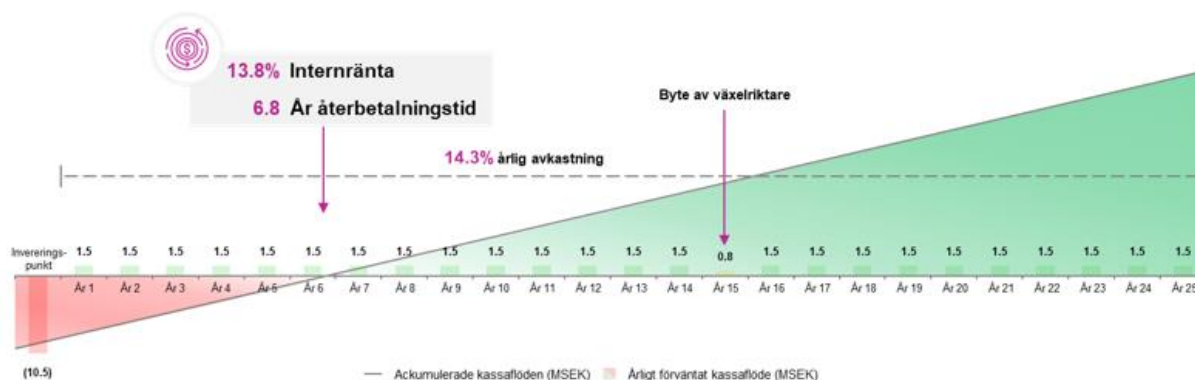
ASAB offers solar-as-a-service. According to its offering, customers do not pay for the photovoltaic installation, hardware, or maintenance – their only cost is the electricity they purchase from ASAB. They commit to buying the electricity produced by the photovoltaic systems for the subsequent 20–25 years. ASAB sells the electricity to the customers at a discount of some 10–15% to the price they pay for electricity from the grid.

Customers are primarily manufacturers with medium-sized production facilities that typically also have large roofs. If surplus electricity is generated or the customer does not pay, ASAB is free to sell the electricity to the grid. This ensures almost 100% uptake of the electricity its projects generate. While customers receive cheaper electricity with a lower environmental impact, ASAB gets long-term predictable cash flows.

ASAB's revenues stem solely from electricity production and can be split into two sources: electricity sales and subsidies. Electricity sales accounted for 77% of revenues in full-year 2022. The electricity produced by its photovoltaic systems is sold primarily to the owners of the buildings where the systems are installed. Any surplus of electricity not used by the customers is sold to the grid. Sales to customers are prioritised as the price they pay surpasses that achieved by selling to the grid.

By prioritising customers with a significant electricity need compared with the size of the photovoltaic system, ASAB can sell around 80% of the electricity generated by its portfolio directly to customers. The share of electricity sold to customers has been relatively stable as the portfolio has grown, although it declined during 2022 when electricity from two larger projects was sold solely to the grid. Photovoltaic systems have an operating time of around 98%, with highly predictable electricity production throughout the year.

Estimated cash flows from ASAB's system at one customer, Sohbi Craft (solar system of 1.7 MW in Jiangsu installed in September 2019)



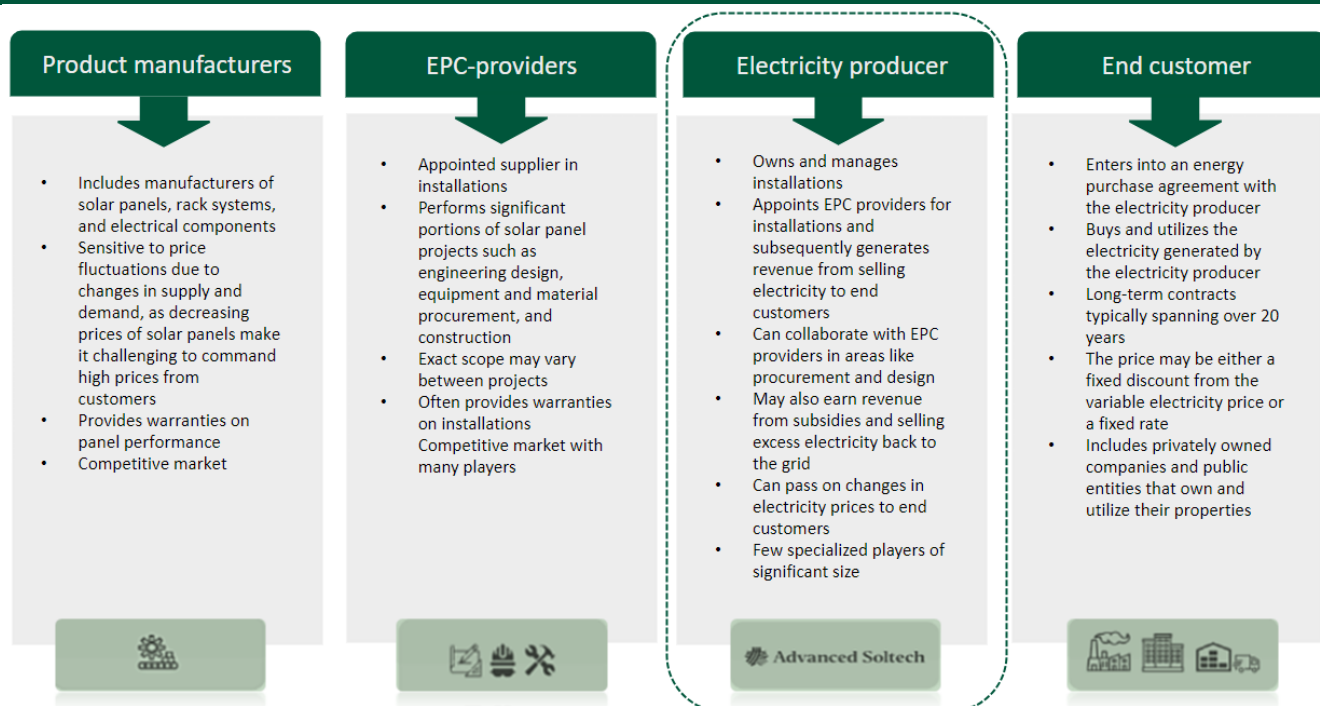
Source: Company

Value chain

The value chain for roof-mounted photovoltaic systems comprises product manufacturers, EPC suppliers, electricity producers, and end customers.

- *Product manufacturers* are manufacturers of solar panels and modules, assembly systems, and electrical components. Manufacturers of solar panels are vulnerable to price fluctuations stemming from changes in supply and demand, since declining market prices for solar panels make it challenging for them to charge their customers high prices. Product manufacturers usually provide guarantees for the performance of solar panels (typically 25 years) and equipment warranties to customers.
- Suppliers of engineering, procurement, and construction (*EPC suppliers*) usually provide ready-made photovoltaic solutions, including technical design, procurement of equipment and materials, and construction and grid connection. The exact scope of EPC suppliers can vary between specific projects. In some cases, EPC suppliers can provide installation warranties (typically of one year) to customers. As the market for EPC suppliers is fragmented, we consider it competitive – there are many EPC suppliers competing for projects across China, both regionally and nationally.
- *Electricity producers*, such as ASAB, own and manage photovoltaic systems and provide electricity to end customers with which they have signed a purchase power agreement (PPA). Energy producers can acquire potential new projects and hire EPC suppliers for the installation of photovoltaic systems. Following installation, the energy producers receive revenues from the sale of electricity to end customers and, where applicable, from subsidies. Photovoltaic systems are tailored for each customer as the energy producers and EPC suppliers design the installation based on a customer's electricity requirements. Surplus electricity from distributed photovoltaic systems is thus rare, but if an end customer is temporarily unable to use the electricity generated, the surplus is sold to the grid.
- *End customers*, meaning ASAB's customers, buy and use the electricity produced by the electricity producers according to their PPA. End customers can be private or public entities that own and operate a property suitable for photovoltaic systems. End customers receive cheaper and more environmentally friendly electricity from the electricity producers through their PPA at a discount, typically 10–15%, to the price at which they would be able to buy electricity from the grid. As end customers also require electricity on cloudy days and at night and since electricity is expensive to store, end customers remain connected to the grid and do not rely wholly on their photovoltaic systems for their electricity needs.

Value chain



Source: Company, EPB

China has a well-developed solar energy ecosystem

The solar energy ecosystem in China is well developed and includes a wide range of stakeholders. Interest groups include a number of competing market players, which creates a healthy competitive environment and provides ASAB with the possibility of choosing between several competent suppliers and service providers.

Hardware suppliers

Hardware suppliers provide solar panels and inverters for photovoltaic installations, among other things. ASAB's systems comprise two types of solar panels: CdTe (cadmium telluride) and silicon (crystalline silicon). CdTe solar panels are ASAB's preferred technology as they are slightly more suited to the climates of certain regions where ASAB is present. The CdTe panels ASAB uses are provided by ASP. The majority of ASAB's systems are based on silicon, however, as access to these panels is considerably greater than to CdTe panels.

ASAB buys in solar panels from three suppliers: CdTe panels from ASP and silicon panels from Sunny Energy Co Ltd and Ningbo Ulica Solar Co Ltd. Silicon panels are a standardised product and ASAB has many established suppliers to choose from.

EPC suppliers and installation and service partners

EPC suppliers are responsible for the entire construction process, from design to installation of a complete and operational photovoltaic system. The relationship between ASAB and EPC suppliers is regulated through EPC agreements that are structured as turnkey contracts. ASP is employed as an EPC supplier for the majority of ASAB's projects, with the exception of the acquired portfolios of already commissioned projects. Since 2022, ASAB has also employed a new player, SaiGe, as an EPC supplier. SaiGe is an affiliated company of ASP.

EPC suppliers work closely with installation and service partners in the construction phase, as this part of a project's lifecycle is usually subcontracted out. These parties are often also responsible for the maintenance of operational projects. Installation and service partners are almost exclusively local solar panel retailers. There are a number of service providers in this segment for ASAB to choose from.

Advanced Solar Power (Hangzhou) Inc. (ASP)

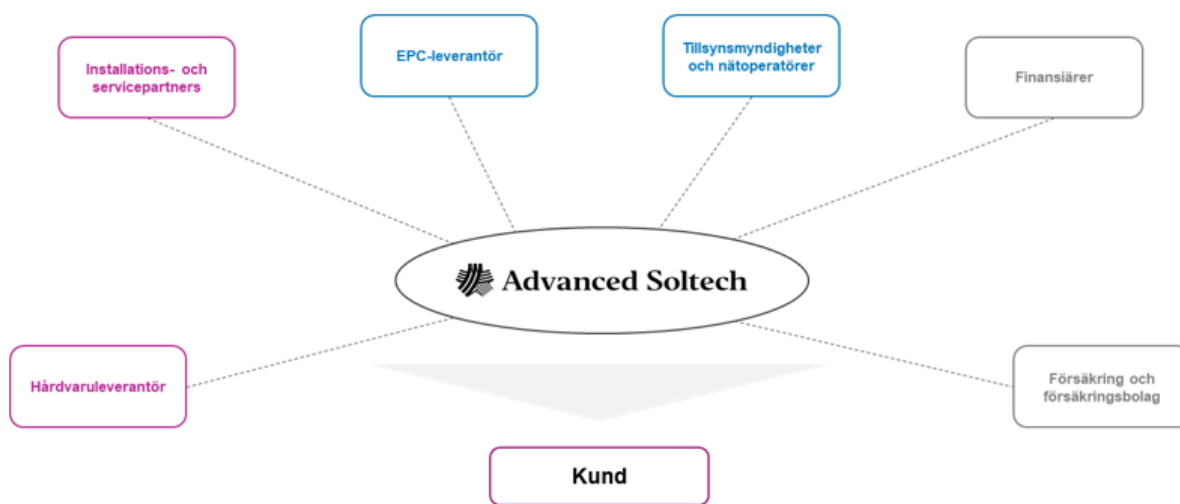
ASP, which owns 31.15% of ASAB, is a prominent thin-film solar cell producer based in China. ASP's CdTe-based thin-film solar cells have been distributed in more than 41 countries around the world, including Sweden. ASP is known in particular for its building-integrated photovoltaics (BIPV). Among the investors in ASP are Sequoia Capital, Morningside Venture Capital, and Legend Capital.

ASP and ASAB have a mutually beneficial relationship. All the projects utilising CdTe panels use panels from ASP, which provides that company with stable demand for its solar panels. Beyond providing ASP with stable demand, ASAB's use of ASP's CdTe solar panels also represents a promotional platform for ASP's products.

As ASP is an established player in the Chinese solar energy market, it has an extensive network of retailers that also operate as installers and operating engineers. ASAB uses this third-party network for sales, installation, and maintenance of its solar-as-a-service solution.

In addition, ASP and ASAB benefit from each other's geographical presence; having a Chinese partner with experience of the local market is essential for a foreign company like ASAB when establishing itself in China.

Key partners in the Chinese solar energy ecosystem



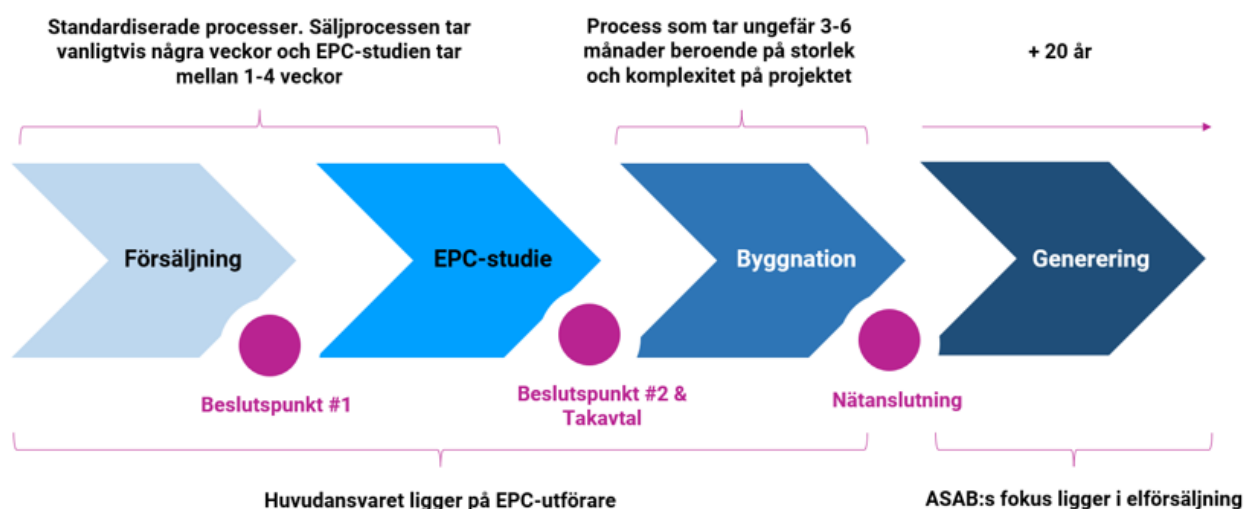
Source: Company, EPB

Standardised life cycle of photovoltaic systems

ASAB has a standardised life cycle for its greenfield projects, detailing how each project will progress, from initial customer contact to completion of an installed system that produces electricity. It uses external suppliers to a great extent across the whole life cycle in order to minimise internal fixed costs and to maintain its ability to scale up quickly when capital becomes available. The approach is cost-effective and also reduces ASAB's risk. A typical project takes three to six months from initial customer contact until the photovoltaic system is in use, with the last of those months used for a verification test by the local network operator.

ASAB maintains close collaboration with ASP for the entire life cycle. Thanks to ASP's local knowledge and established position in the Chinese solar energy market, ASAB has been able to build relationships with experienced retailers and solar panel installers. Although ASAB has no obligation to use ASP as an EPC supplier, ASP has proven a reliable partner at a competitive price.

Typical life cycle for ASAB's photovoltaic system projects



Source: Company, EPB

Sales process

ASAB's sales process can be split into three stages: customer identification, customer survey, and a customer acquisition meeting. All parts of this process, including identifying potential customers and sales, include a high share of third-party involvement through an extensive network of retailers. ASAB is responsible for customer evaluation based on data from third parties and information gathered during customer acquisition meetings.

Potential customers are identified and often come into contact with ASAB in two ways. Either, they are identified as part of an audit carried out by the external sales network, with retailers screening potential customers based on factors like roof size and estimated electricity consumption. Or they are covered by a framework agreement between ASAB and the provincial government, with the latter proposing suitable customers.

When a potential customer is identified, the retailer submits a standardised form providing customer information. Information gathered here includes credit details and potential judicial processes, along with key data like consumption requirement patterns and roof size.

The information form constitutes the basis for a customer acquisition meeting with reps from ASAB and the EPC supplier's engineers. Following the meeting, the customer is categorised according to the profitability and strength of their business. ASAB can then either take the next step with the customer, reject them, or request further information before making a decision. If it decides to proceed with a customer, it commits resources to the project.

The company believes this process is an effective way to ensure focus is on the most promising projects. Historically, 10–20% of all potential customers have passed this first review. The entire sales process usually takes a few weeks.

As of 30 June 2023, ASAB had a project pipeline of 66 customers with combined installation capacity of 178 MW. Of these, 46 customers were at the initial stage and being evaluated for suitability and economics. The other 20 customers, holding a combined capacity of 60 MW, had entered into binding commitments (contracts) with ASAB or were facilities in the midst of installation (of which, 13 were customers with EPC contracts (47 MW) and seven were customers without EPC contracts (13 MW)).

Sales network originates from relationship with ASP

ASAB's sales efforts are primarily targeted at an external network it initially gained access to via its relationship with ASP. The network comprises 150 sellers split across some 30 retailers with a presence in all Chinese provinces except Hainan, Xinjiang, and Tibet. ASAB currently uses salespeople from five to eight of the retailers in its current focus regions. It maintains some flexibility, however, and can scale up utilisation of the sales network to all 30 if necessary.

Retailers of ASAB's offering work on commission and are only paid when a project is approved for installation. Moreover, retailers are employed as installers and maintenance engineers for installation and maintenance of the photovoltaic systems if a project is approved. In this way, there is an additional incentive for the retailers to provide the company with high-quality

customer proposals. When ASAB's solar energy is sold as a service, there is no need for the retailer to keep products in stock, which makes the company an appealing partner to the retailers and complements its range of hardware suppliers like ASP.

The company has an internal sales team of two employees who are mainly responsible for supporting the external sales team by acting as channel managers. When a potential customer is judged to be suitable and is approved by ASAB's evaluation committee, the internal team assumes responsibility and the customer relationship switches to ASAB.

Individual business contracts complemented by framework agreements with economic regions

Part of ASAB's growth strategy is to complement individual business contracts with larger framework agreements with economic regions. These agreements provide ASAB with exclusivity for a predetermined target capacity of photovoltaic systems in a region for the years covered by the agreement. The targeted capacity is a goal rather than a firm commitment, which allows ASAB to maintain full flexibility in terms of which projects to pursue, if more profitable projects become available outside the framework agreements.

In addition to granting ASAB exclusivity, the other party proposes buildings and businesses suitable for photovoltaic systems. Framework agreements allow ASAB to shorten the standard sales process as the identification of potential customers and review become largely superfluous.

Local authorities in China are often evaluated based on their ability to attract foreign investment capital to their region. This means ASAB is well placed to continue securing framework agreements. As the decision to invest in a project under a framework agreement is made at ASAB's own discretion, the authorities often provide an incentive programme through which the company might be eligible for grants of 1–2% of the foreign capital invested under the framework agreement.

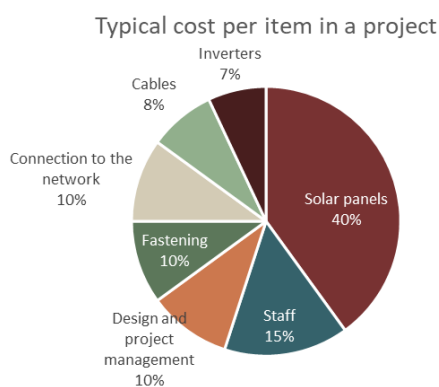
Construction

When a PPA has been agreed upon, engineers from the EPC supplier prepare the design and produce drawings for the project. Before construction starts, it is approved by the local grid operator.

The construction process is structured as an operational contract, which means one EPC supplier is employed to carry out construction in accordance with the previously approved design and is responsible for all parts of the process, including purchasing and hardware installation. Before the EPC contract is signed, the EPC supplier submits a proposal that includes, in addition to the contract itself, a timetable, installation layout, and price proposal per watt for the installed and grid-connected equipment. The EPC supplier handles ordering of the hardware, but ASAB always has to approve the EPC supplier's choice of panels before the order is placed.

Construction takes two months on average for a system of 1–2 MW. Including final inspection by the grid operator, the entire construction process takes an average of three months.

Solar panels account for 40% of costs in a typical project



Source: Company, EPB

The main costs for construction of a new photovoltaic system are the procurement costs for the solar panels, inverters, assembly system, and cables, together with the labour expenses, plus the costs for designing and building the system. During the time ASAB has been operating, costs for building photovoltaic systems have gradually decreased. This has largely stemmed from lower costs for purchasing solar panels.

Generation

When a photovoltaic system has been completed and connected to the grid, it can provide the customer with renewable electricity at a lower price than the grid price for around 20 years. All ASAB's projects are covered by an insurance policy that compensates for damage to the photovoltaic system for the duration of the PPA.

To ensure optimal performance of the systems, the company works proactively with monitoring and maintenance. ASAB's internal monitoring staff monitor all projects via a digital platform and track important performance indicators like electricity production, operating time, and potential faults. If a problem is identified, the maintenance manager is notified immediately. All on-site maintenance is handled by third parties. During the first year after a project's completion, maintenance is covered by the EPC supplier responsible for construction. After that time, ASP appoints a local maintenance service provider for ongoing maintenance. In addition to repairs, maintenance of the photovoltaic system includes panel cleaning and regular inspection.

The general maintenance needs of a photovoltaic system are limited as, unlike many other renewable energy production technologies, the system does not consist of moving parts. In a typical project, the inverter needs to be replaced once during a 20-year contract. Photovoltaic systems can remain on site throughout the length of the contract, providing stable production and efficiency. In some cases, the cables will need to be replaced. To ensure optimal performance, the solar panels should be cleaned twice a year.

Electricity production

ASAB generates revenues via electricity production by its photovoltaic systems. Revenues can be split into two parts: net sales and other operating income, with net sales accounting for the majority (77% of total revenues in full-year 2022). Revenues from electricity sales to customers and to the electricity grid are recognised as net sales. Other operating income primarily comprises subsidies and, to a lesser extent, investment grants and insurance claims.

The subsidy level for a new project is expected to be zero or negligible. Subsidies granted for previously completed projects, however, remain constant for the entire period they cover, which is usually around 20 years, in line with the typical contractual periods for electricity trading contracts. A larger share of the company's future revenues are thus expected to stem from net sales. The negative impact on project returns from reduced subsidies has been offset by lower construction costs for new facilities (largely explained by an ongoing decrease in the price of solar panels).

Electricity production from the company's photovoltaic systems depends on the extent of solar radiation. Solar radiation can vary by season, which for south-eastern China (where most of ASAB's systems are located) means that electricity production is generally higher in the second and third quarters of the year than in the first and fourth. As solar radiation can also vary between regions, an adjustment in the company's geographical portfolio mix can change the potential seasonal pattern of electricity production and revenues.

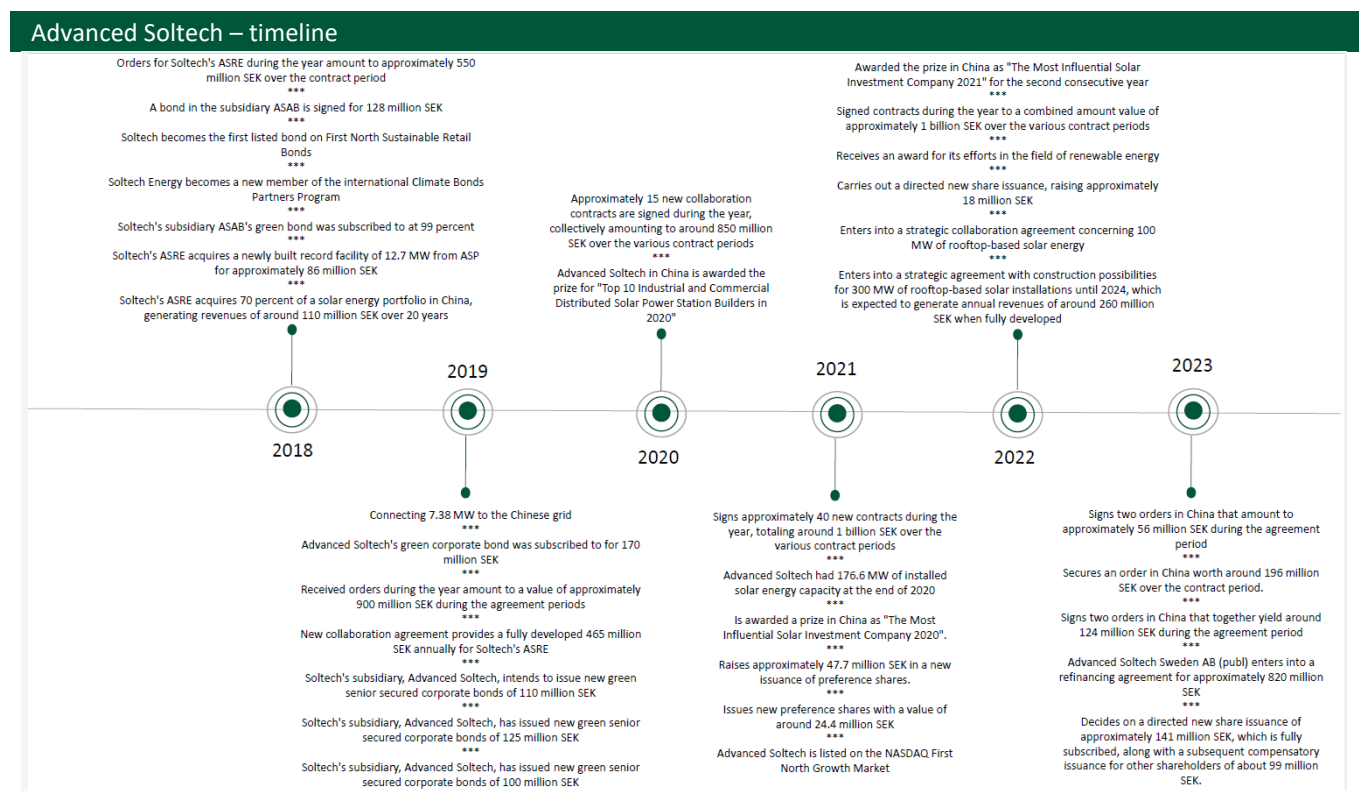
Fragmented competitive landscape

The market can be characterised as large and rapidly growing thanks to strong underlying demand, but highly fragmented. However, few electricity producers specialising in solar panels with PPAs have reached a significant size. One possible explanation for why supply has not yet met demand is that only a few electricity producers have had funds enough to finance the initial cost of constructing new facilities.

Local retailers of photovoltaic equipment that want to enter the market by starting PPA-based operations face enormous challenges, the largest being a lack of funding to realise the opportunities available and the consequent lack of reference projects. Aside from ASAB, Asia Clean Capital stands out as one of the specialist PPA-based energy producer in China that has managed to build a large portfolio of distributed photovoltaic assets. GCL New Energy is another large energy producer in the Chinese market for distributed photovoltaic systems, but it focuses more on land-mounted systems. The company is majority-owned by GCL-Poly, a manufacturer of polycrystalline silicon used in solar cells.

Larger energy companies have other operational and organisational arrangements, as their core activities are usually based on large-scale centralised energy-generating facilities. Moreover, distributed photovoltaic systems can potentially cannibalise their core supply. Despite this, larger energy companies like Électricité de France, Total, State Power Investment Corporation, and China Datang Corporation have entered the Chinese market for distributed photovoltaic systems, through either subsidiaries or consortiums offering electricity trading contracts to potential customers.

As the market is large and growing, we do not consider competition to be a significant limiting factor for growth in the segment. Electricity producers working with electricity trading contracts are running capital-intensive projects and thus need financial resources if they want their solar power generation portfolio assets to grow. For electricity producers like ASAB that specialise in distributed photovoltaic systems, the greatest potential growth bottleneck in the segment is access to capital to finance new projects.



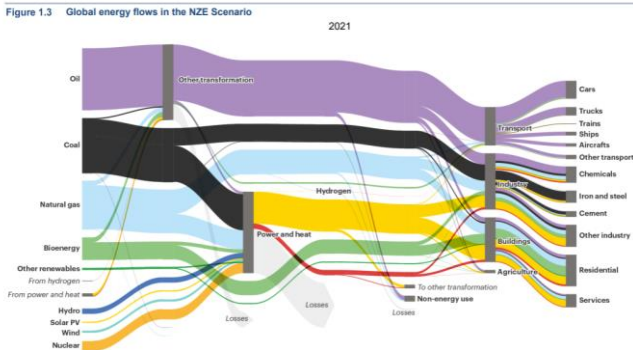
Source: Company, EPB

Market

ASAB is part of the electricity production market in China, where it owns and operates photovoltaic systems and sells the electricity from these directly to property owners or the local grid. The Chinese market is today dominated by coal power and accounts for around 28% of all electricity produced globally. During 2009–2019, Chinese electricity production expanded by 10% y/y. To meet the growing demand, China is expected to expand its capacity by the equivalent of current US electricity production. We thus anticipate decent growth in the coming years driven by the development in China. Moreover, we do not expect the short-term turbulence in the Chinese economy to hurt ASAB’s long-term potential and operations.

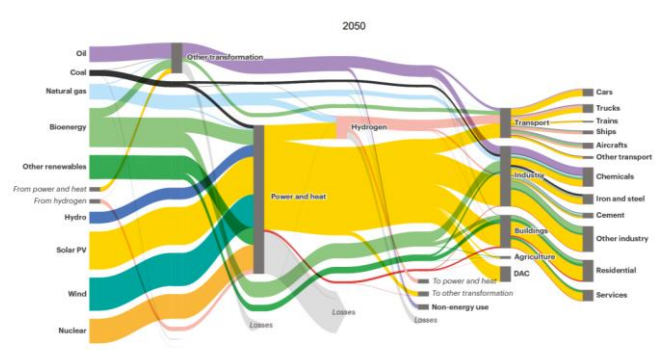
According to a 2023 market report from the International Energy Agency (IEA), a large shift is needed from fossil fuels like coal and oil to renewable energy if the Net Zero Emissions (NZE) goal is to be reached by 2050. This transition requires that current solar energy production capacity expands by a factor of 13x between 2021 and 2050, which represents a CAGR of some 10%. In 2021–2030, the overall expansion of renewable energy is expected to grow by a factor of 4x, from 300 GW to 1,200 GW. Given China's size, the development of this market is key to reaching the target.

Fossil fuels dominated the mix in 2021...



Source: IEA

...but must be phased out if NZE 2050 is to be reached...

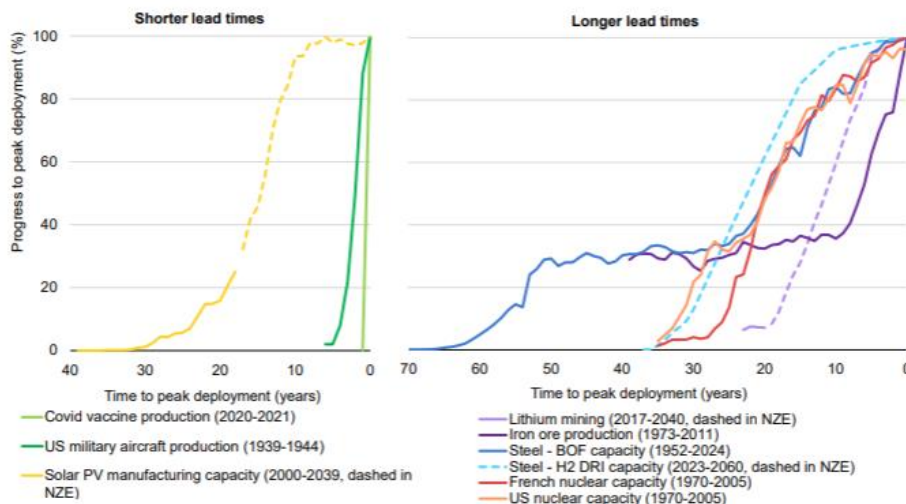


Source: IEA

To reduce CO₂ emissions and the dependence on fossil fuels, the Communist Party of China has started a number of initiatives to cut emissions, known as the 30–60 target. This target implies that China needs to start reducing its CO₂ emissions by 2030 at the latest and be climate neutral by 2060. According to the IEA, this would mean a significant expansion of solar energy production capacity to account for the transition from fossil fuels to renewable energy. Today, the industry is at about 20% of its maximum production capacity. The IEA believe maximum capacity will be reached in 12–16 years.

...which will lead to a significant expansion in solar energy capacity

Figure 1.17 Global scaling-up of selected energy and other supply chains by lead time in the past (solid) and the NZE Scenario (dashed)



Source: IEA

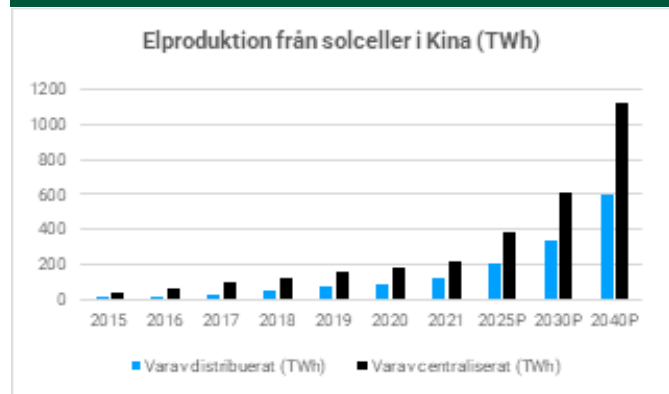
A study by Harvard John A. Paulson School of Engineering has calculated how the cost of solar energy will develop in the Chinese market. Given the capacity expansion that is taking place and presented above, it judges that 43.2% of China's electricity production can be covered by solar energy by 2060 at a cost of 2.5 cents/KWh, which can be compared with a cost for coal in 2019 of around 3.6–6.5 cents/KWh.

Given that ASAB buys in and operates photovoltaic systems rather than produces photovoltaic cells, the company should benefit from both the capacity expansion taking place and the policy initiatives taken.

China is the world's largest photovoltaic market

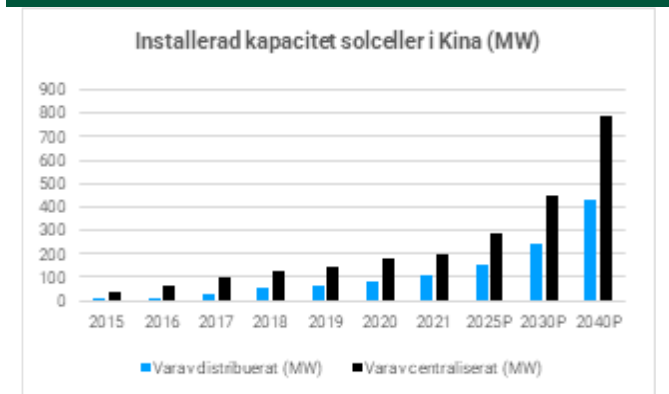
The photovoltaic market in China has grown rapidly. In 2015, installed photovoltaic capacity in China reached 44 GW. Six years later, in 2021, installed capacity had expanded to 306 GW, implying a CAGR of 48%. As a reference, the total installed photovoltaic capacity in Sweden reached 1.6 GW in 2021. Electricity production from solar energy source in China increased from 39 terawatt hours (TWh) in 2015 to 327 TWh in 2021. The share of electricity production from solar energy has risen from 0.7% in 2015 to 3.9% in 2021. Distributed photovoltaic systems in China have seen more rapid growth and expanded by more than 15x, from 6 GW to 107 GW from 2015 to 2021, which implies a CAGR of 78%. The total installed photovoltaic capacity in China is expected to grow to 1,219 GW by 2040, with more than 1,700 TWh of electricity being generated annually from solar panels.

Electricity production from solar energy sources in China increase to 327 TWh in 2021...



Source: NEA, China Electricity Council, IEA, World Energy Outlook 2020, plus ourworldindata.org, ASAB, EPB

...and the installed capacity grew by 48% each year in 2015–2021



Source: NEA, China Electricity Council, IEA, World Energy Outlook 2020, plus ourworldindata.org, ASAB, EPB

From a global perspective, China is the country with by far the largest total solar cell capacity, representing 36% of global capacity as of the end of 2021. Between 2017 and 2021, China's net capacity additions of solar panels accounted for some 42% of the total global contribution. In 2021 alone, China added 53 GW of installed solar panel capacity, compared with the 80 GW for the rest of the world.

In 2021, solar panels represented 13% of the installed electricity production capacity in China. This share is expected to rise to 31% in China by 2040. This is a significant increase, both in absolute terms and compared to the total installed capacity.

Market for distributed photovoltaic capacity in China

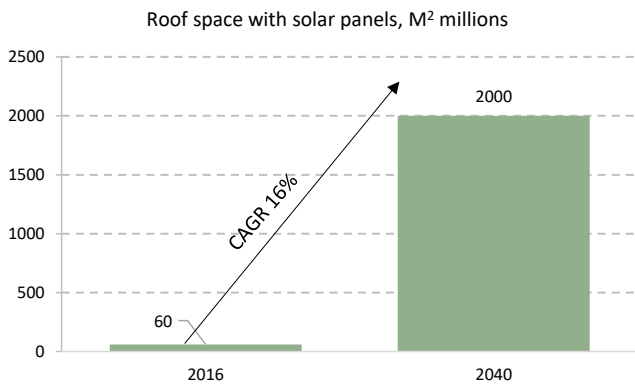
In the development of solar energy, a distinction is made between centralised and distributed solar power. Centralised power is the large solar parks built in projects, with electricity distributed to the grid. Distributed power is the capacity installed on buildings of various types, with the produced electricity being sold either to the grid or to the property owners. According to Mordor Intelligence, the total solar energy market is expected to grow by a CAGR of around 15% in 2019–2028. The main driver of this growth is the initiatives discussed above – that China will start reducing its greenhouse gas emissions from 2030 to reach NZE in 2060.

According to available market data from Mordor Intelligence, the capacity of distributed solar energy is expected to grow by a CAGR of a little over 10% in 2020–2025. The considerable capacity expansion will take place on industrial and commercial properties.

The Chinese construction industry had a turnover of around USD 4.6tn in 2022 and is expected to grow by some 4% until 2027, according to Global Data. This will be driven by the five-year plan laid out by the Communist Party of China. 15–20% of these investments are expected to consist of commercial or industrial properties, which are potential end customers for ASAB. To expand the deployment of solar energy, the party has imposed directives for at least 50% of the available area on buildings hosting state activities to be covered by solar panels. The equivalent figure for public sector buildings like hospitals and schools is 40%. For commercial and industrial buildings, the figure is 30%. We thus believe there is a market for new projects for ASAB thanks to the construction of commercial but mainly industrial buildings during 2023–2027, and that the existing property portfolios will deploy solar power.

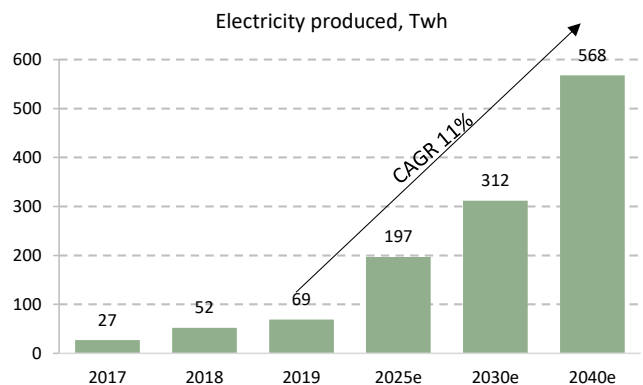
In 2016, the IEA estimated that about 60 million m² of roofs in China were covered with solar panels, and this is expected to increase to some two billion m² by 2040, which is equivalent to a CAGR of around 16% for 2016–2040. We thus anticipate good market growth for ASAB, supporting the estimates for our forecast period. The company itself estimates that production from distributed solar energy amounted to 69 TWh in 2019 and is set to reach 568 TWh by 2040.

Great potential on Chinese roofs...



Source: IEA, Company

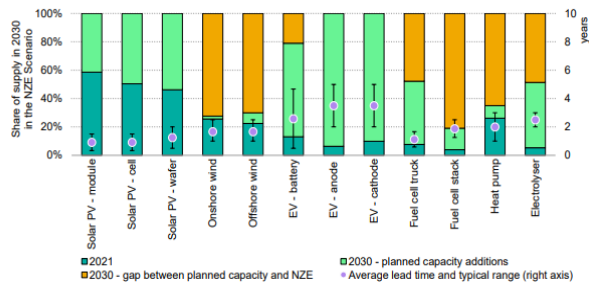
...while capacity is expanding



Source: IEA, Company

Large capacity expansion for solar cells expected...

Figure 4.1 Current global manufacturing capacity, announced capacity additions, capacity shortfall in 2030 relative to the NZE Scenario, and lead times for selected mass-manufactured clean energy technologies and components

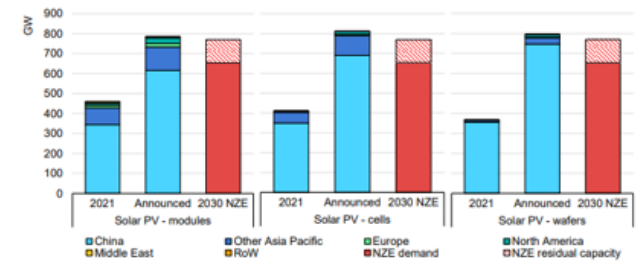


Notes: NZE = Net Zero Emissions by 2050 Scenario; PV = photovoltaics; EV = electric vehicle. Announced capacity additions take account of projects to expand or build new facilities that have already reached the final investment decision stage and that are under construction or about to begin construction, as well as those awaiting such a decision. Lead time refers to bringing online new manufacturing capacity.

Source: IEA

...while China is at the forefront in capacity

Figure 4.5 Solar PV manufacturing capacity by country/region according to announced projects and in the NZE Scenario



Notes: GW = gigawatts; RoW = rest of world; NZE = Net Zero Emissions by 2050 Scenario. Announced capacity includes existing capacity. The manufacturing capacity needed to meet projected demand in the NZE Scenario (NZE demand) is estimated assuming a utilisation rate of 85%. NZE residual capacity, thus, represents the manufacturing capacity that would remain unused, on average, which provides some flexibility to accommodate demand fluctuations.

Source: IEA

Review of market players and capacity

According to Mordor Intelligence, the production of solar cells for distributed energy is a market with fierce competition and many players. We thus see the input for ASAB as subject to some price pressure. The IEA states that around 70% of all panels are produced in China. The capacity investments it sees necessary for NZE to be reached in 2050 are largely already in place or planned. We thus do not anticipate any issues for ASAB in the supply chain in the foreseeable future. As we touch on later in this report, we believe the capacity for production and production inputs should lead to stabilising prices.

Mordor Intelligence considers the leading producers of solar panels and cells to be:

- **Suntech:** Suntech is a Chinese manufacturer of solar panels. Its capacity since inception in 2001 is +40 GW.
- **Csunpower:** The company has the capacity to deliver a 2.5 GW effect from its seven facilities globally. It has historically delivered capacity exceeding 15 GW.
- **Trina Solar:** A listed Chinese company with a turnover of some USD 12,400m in 2022. The company has production capacity surpassing 100 GW and currently has 9.5 GW connected to the grid.
- **Jinko Solar:** A listed Chinese company with 2022 turnover of USD 12,000m. It has capacity of around 150 GW.
- **First Solar:** The leading US company in the industry. It is expected to have capacity exceeding 20 GW by 2025.
- **Sharp Solar:** A subsidiary of Japanese tech conglomerate Sharp, with production capacity of more than 15 GW.

We believe the large manufacturers of panels could pose a potential threat to ASAB. They have the possibility to offer sale lease-backs to customers in the Chinese market thanks to their size and capacity. We note, however, that the projects ASAB focuses on are relatively small, rendering them uninteresting for this type of player.

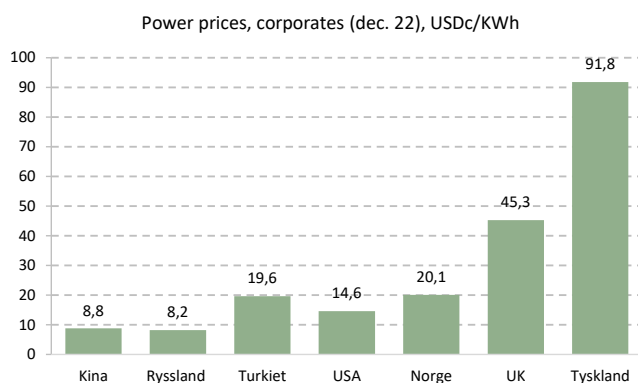
A more likely type of competitor, in our view, would be other financial players seeking to break into the market. On this point, the Chinese financial regulatory authorities have recently approved a number of REITs (real estate investment trusts) for listing. These take in capital and then invest via SPVs in a similar manner to ASAB. The funds have the Chinese state as an anchor investor. The first, Beijing Energy International, has taken in the equivalent of USD 0.4bn to invest in projects with a capacity of some 400 MW. Given the volume of the capital these REITs have raised, we believe they will target larger projects than ASAB. We thus see lower volumes of institutional capital as a tougher competitor. Here, ASAB has an advantage in its robust track record of 176 projects, its good access to financing, and its close relationships with key players among small and medium-sized Chinese companies in its chosen regions. The company has received awards two years in a row as a provider of solar-as-a-service.

Electricity prices have been relatively stable in recent years

Electricity prices in China have been regulated by the National Development and Reform Commission (NDRC) since 2004. Actual prices are determined by the grid operators, however, and can thus vary between regions. Densely populated regions with a high electricity requirement – such as those with several large cities and highly developed manufacturing industries – tend to have relatively higher electricity prices. Most of these regions are in eastern China. On the other hand, electricity prices tend to be lower in the natural resource rich but sparsely populated regions, which are typically in the west of the country. Electricity prices in China can also vary between different types of end customer, which are classified by their electricity use. For example, prices can differ for private customers with 220 V and industrial customers with 35 kV or more. As Chinese electricity prices are decided centrally, they often remain stable for long periods.

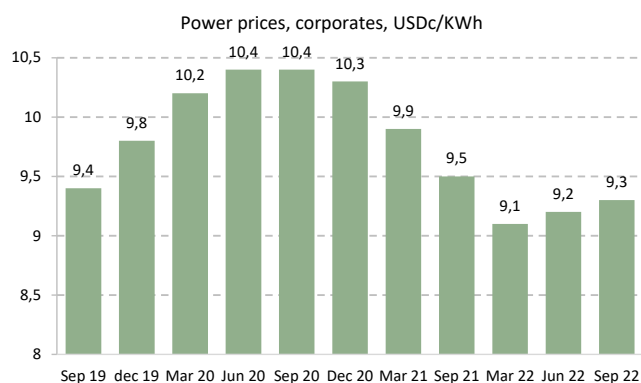
Chinese electricity prices have been relatively stable for the past two years. From a global perspective, China sits in the middle of the list of prices, under the western world and in line with other growth countries. Given the structure of Chinese society, we believe prices will continue to see less volatility than in the western world, making energy project calculations more reliable. This is confirmed by electricity prices not having risen as sharply as for coal, the main input, in 2020–2022.

Electricity prices in line with other developing countries...



Source: Globalpetrolprices.com

...with less volatility than the western world



Source: Statista

We believe electricity prices will remain stable or rise marginally in the future. Historically speaking, we have only seen a slight upward trend in the Chinese coal price. This development has been driven partly by the cost of labour having risen in 2018–2020. This has made the transition from coal to solar power profitable, thanks to stable electricity prices and the rising cost

of alternative energy sources, such as coal. This means ongoing incentives for ASAB's customer to invest in solar power, since the IRR of the investment can be recouped at a stable or slightly rising electricity price.

High volatility in coal price has not disrupted electricity price...

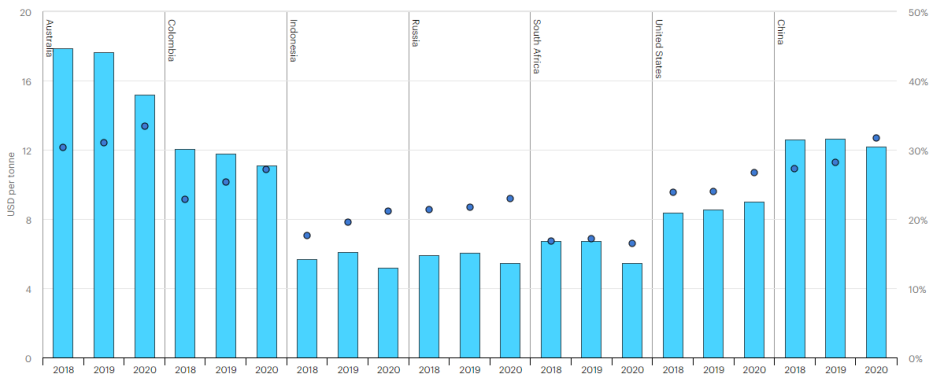


Source: MacroMicro

As the Chinese authorities have imposed strict price controls on coal, we expect the electricity price to remain constant or rise marginally as the price of the chief input stays constant. A potential alternative for Chinese electric power stations is to buy coal on the international market, where it trades at a lower price and is now at parity with the price before the war in Ukraine began. We believe international coal would have a limited impact on Chinese electricity prices, as imports are complicated by the capital restrictions that exist in China.

...which will remain relatively high given rising production costs for Chinese coal

Average labour costs and share in total coal mining costs in selected countries, 2018-2020

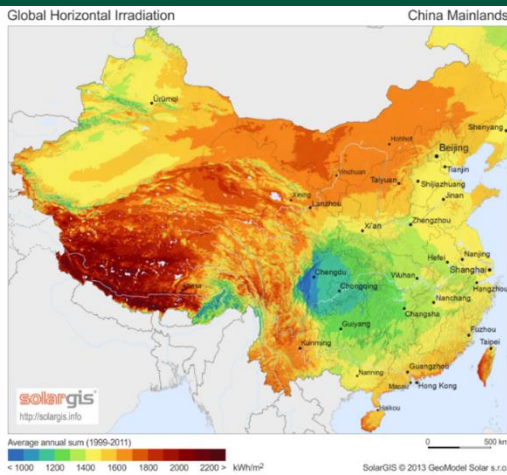


Source: IEA

During the summer and autumn of 2022, China experienced a number of major power cuts. These were caused by lower water levels in the Yangtze River and the two largest freshwater lakes in southeast China, leading to recurring power cuts in the Sichuan, Yunnan and Guangdong provinces. Guangdong is one of the leading provinces in the manufacturing and electronics industries. These are some of the regions ASAB has chosen to focus its operations on since, in addition to the high risk of power cuts, they offer relatively favourable conditions for solar power.

The fixed price for coal set by the Chinese government is a measure to secure energy supply and the directives to coal power producers prioritise industry. We see an incentive for industrial owners to install solar panels on roofs, as this can help reduce the risk of forced shutdowns.

ASAB has focused on regions where power supply is a problem but solar energy is favourable

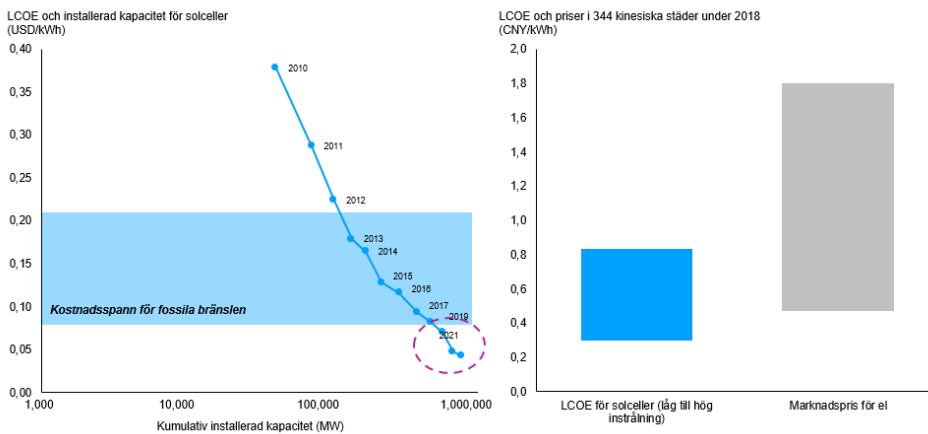


Source: ASAB, EPB

Solar energy subsidies in the Chinese market

Previously, solar energy installations in the Chinese market have been dependent on government subsidies for economic viability compared with investments in fossil fuels or other energy sources. The capacity expansion discussed above, plus the rising coal price, has now meant that investments in solar energy no longer need to rely on government subsidies and support to be economically viable. We believe this will benefit ASAB as the administrative burden of installing distributed solar energy diminishes. Given the current status of the Chinese energy market, we believe the company will be able to find counterparts for more projects.

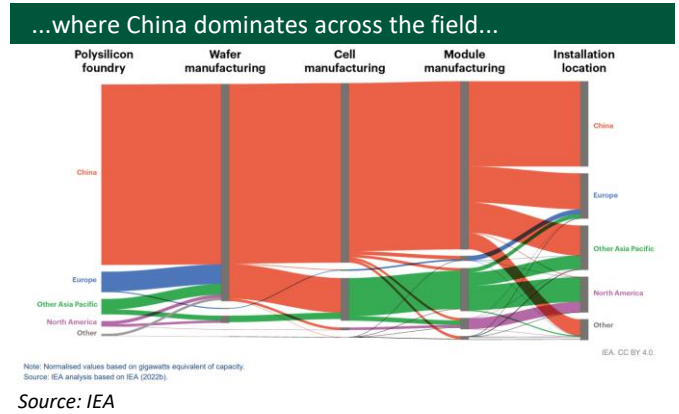
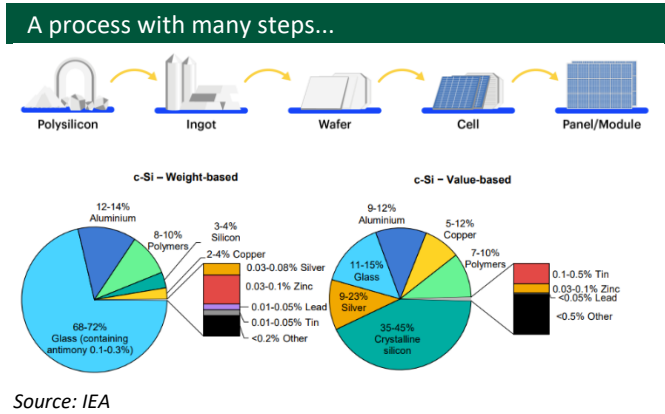
Installing solar panels now profitable without subsidies



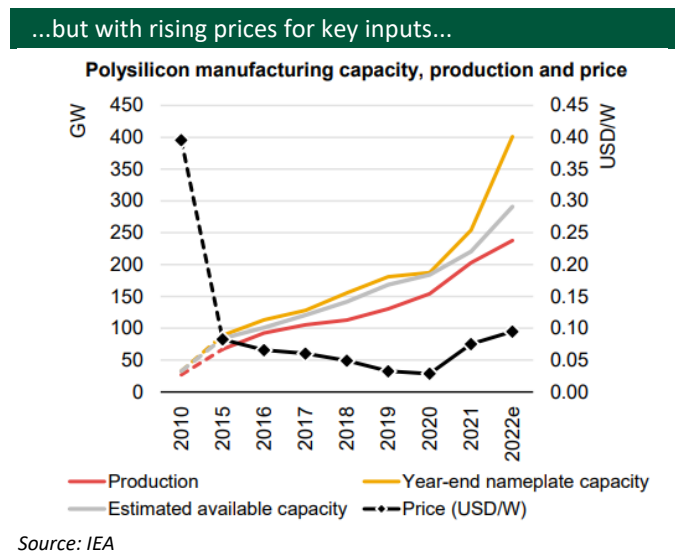
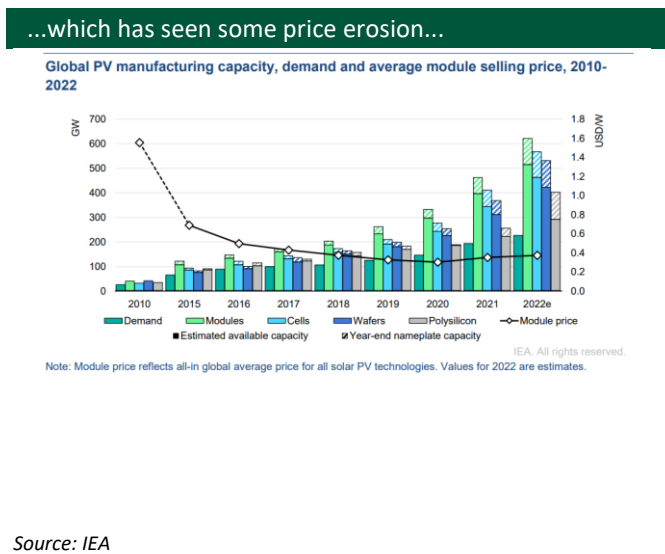
Source: IEA

Review of prices and the market for panels

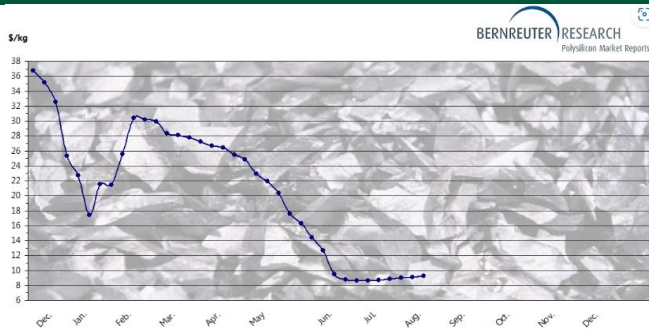
As we have stated earlier, China dominates the value chain in photovoltaics. The flow chart of the industry below highlights China's dominance. We thus believe ASAB holds an advantage in being active in China by being close to all stages of the process.



Historically, all inputs have been subject to price pressure, as a consequence of the capacity increase we have discussed earlier. In the short term, however, prices have risen marginally owing to increasing prices for silicon, which accounts for 35–45% of the value of solar cell production. We believe the bottleneck here in the value chain has eased, as price developments this year suggest price levels now lower than in 2021. Moreover, product developments have meant a far lower share of silicon in the process, making the industry less sensitive to input price swings. Both these trends benefit ASAB.

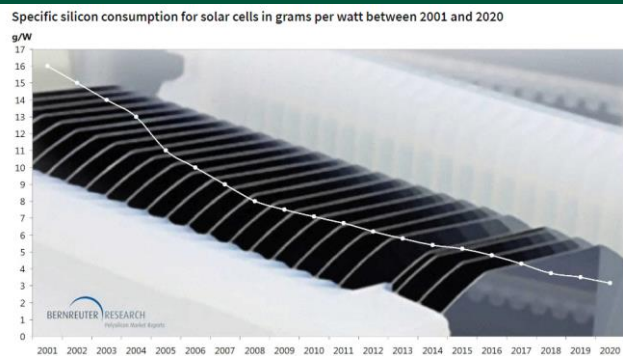


...which have started to come down in 2023...



Source: Bernreuter Research

...partly owing to increased efficiency in manufacturing



Source: Bernreuter Research

Market conditions

Based on the data we have seen, we expect large investments in solar energy in the Chinese market, which are favourable for a player like ASAB. We see four main factors suggesting the market will grow:

- **Large initiatives by the Chinese state:** Given the political situation in China, we believe the current government will push its so-called 30–60 plan hard. This plan implies China starts reducing its CO₂ emissions from 2030. Large investments in solar energy, among other things, are needed for this to happen.
- **Major expansion of capacity and decreasing raw material prices:** We expect both the expansion of solar energy capacity and the production of inputs to lead to lower input prices for ASAB.
- **Stable electricity price owing to price controls on coal:** The Chinese state has imposed price controls on domestic coal. We expect this to keep the electricity price in the Chinese market at levels that make it appealing to invest in solar power, which benefits ASAB.
- **Electricity shortages and rationing:** Most of the regions in which ASAB operates experienced power cuts owing to low water levels in 2022. By investing in solar power, ASAB's customers can reduce their dependence on the central grid and thus lower the risk to their businesses.

Although we are seeing more capital being taken in for investing with the same methodology as ASAB, we believe the company has found a specific niche where it has become the local market leader. We believe a large share of the capital from international and domestic investors pumped into this type of project is more interested in large volumes, which means ASAB has the possibility to maintain a solid niche position in its local markets.

Estimates

Our estimates are based on ASAB executing on the order book it has built up during H1 2023, as only very few new installations have taken place during the period. Given its new, improved financial position, we expect the company to build up capacity during H2 2023 and Q1 2024 to some 290 MW. After this, we anticipate a pause in capacity expansion for the remainder of 2024e, and then a renewed capacity build-up during 2025. We consider our estimates conservative. This should, given its new financial structure, enable ASAB to find local financing at attractive levels, significantly boosting its investment level and thus its growth.

Our view, as before, is that demand is stable and growing and that ASAB holds a sufficiently robust market position to take its share of this growth. We believe its model is scalable, with panels purchased from third parties and all installation contracted out. We thus believe the availability of capital on appealing financing terms is the chief limitation. We see increasingly better potential for it to benefit from the solid demand as it continues to develop positively, as we anticipate.

Revenues stem from the installed capacity in MW, the electrical energy produced by the installed capacity, and finally by how much ASAB manages to charge for each KWh produced. Below, we provide our assumptions for each revenue driver.

Installed capacity

Our estimates indicate installed capacity as shown below. The rate of expansion is, if anything, conservative, based on the historical development. According to the above, our assumptions are based on the company delivering on its H1 2023 order intake of 24 MW, of which only 2 MW was installed during this period. We also expect an increase in installed capacity in Q1 2024, followed by an acceleration of new installations in 2025e, in line with the results, thus increasing ASAB's financing capabilities.

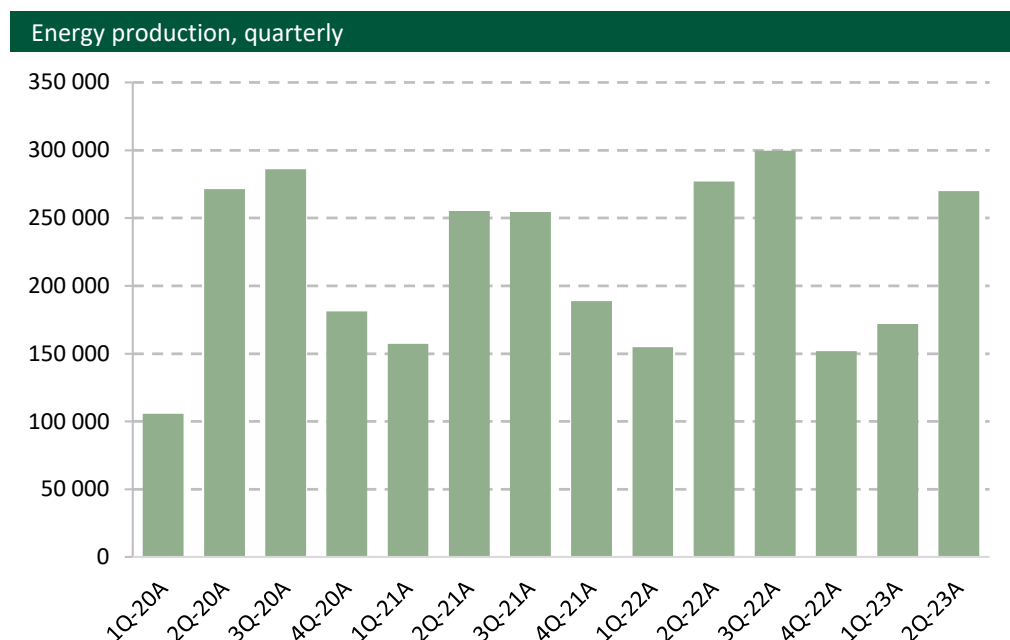
Installed capacity, MW



Source: Company, EPB

Energy production

The energy production is volatile between quarters since it is chiefly governed by solar radiation. Clearly, the second and third quarters are stronger than the first and fourth in a given year, as shown below. Looking at ASAB's development, the annual rate of change in energy production is always the governing factor – sequential assessment between quarters can misrepresent the underlying earnings.



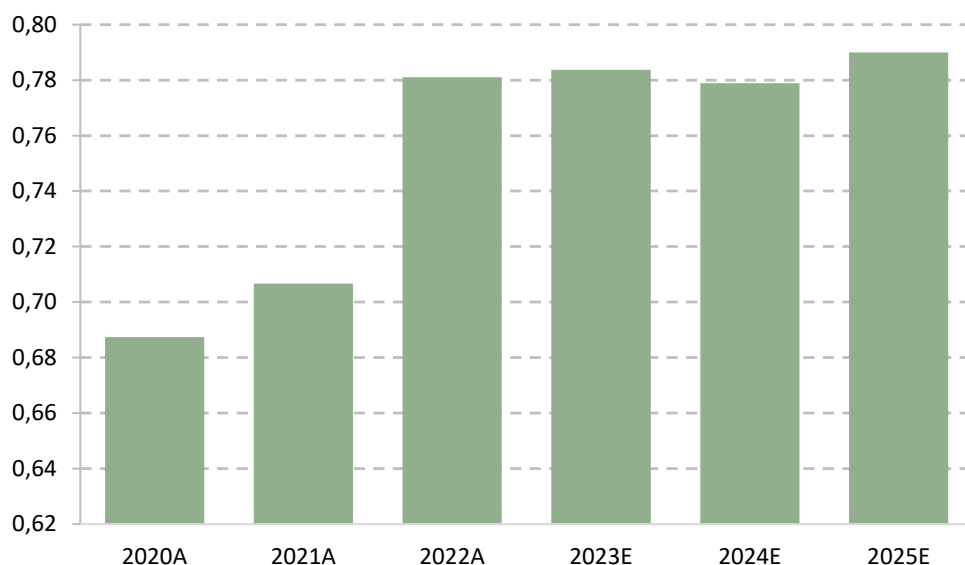
Source: Company, EPB

Our estimates for energy production per installed MW are based on the trend of the past few years of just under 900 KWh/MW.

Revenues per KWh

Electricity prices in the Chinese market are relatively stable (see Market section). That said, ASAB's revenues per KWh have increased, particularly in 2022, versus previous years. We consider this the result of a change in the sales mix – with more energy going directly to property owners because of diminishing pandemic restrictions, which offers higher prices than sales to the grid – plus better exchange rates due to the weak Swedish krona. As before, we consider electricity prices in China to be stable to rising marginally, owing to the structure of the country's power generation market. We thus assume that revenues per KWh will, given a stable development in 2023e and 2024e versus 2022, rise marginally in 2025e.

Revenues per KWh

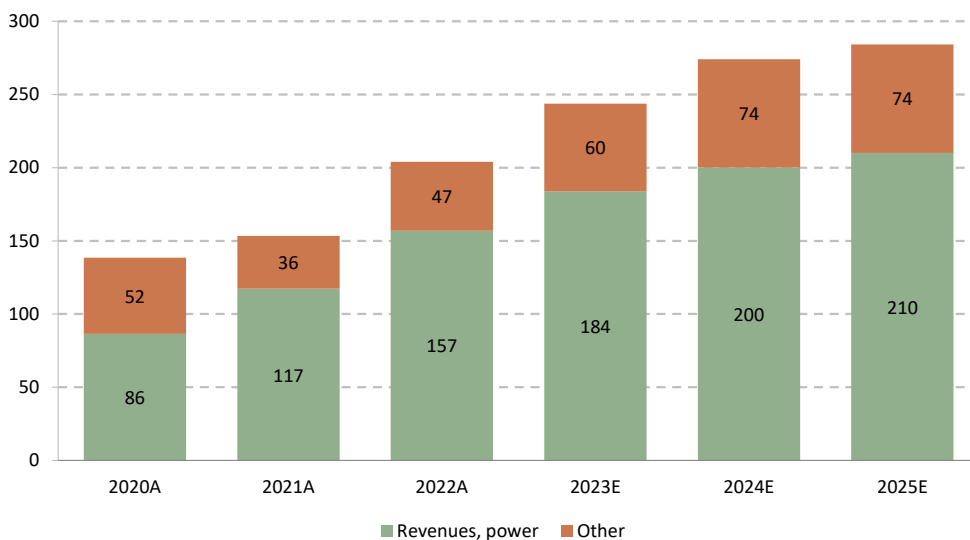


Source: Company, EPB

Growth from power generation and subsidies, with emission allowances as a new revenue stream

Overall, this results in the revenue scenario we illustrate below. Other income consists of subsidies and a contribution from emission allowances, which, according to company guidance, should boost other income from H2 2024 and full-year 2025 to the tune of SEK 8–15m annually.

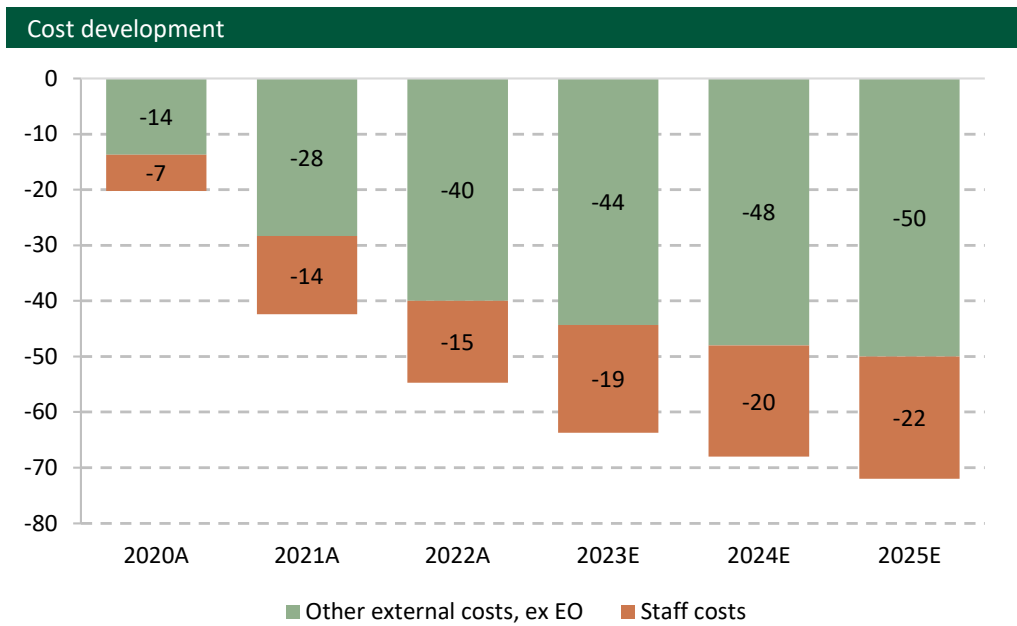
Revenues from power generation and other income



Source: Company, EPB

Cost development

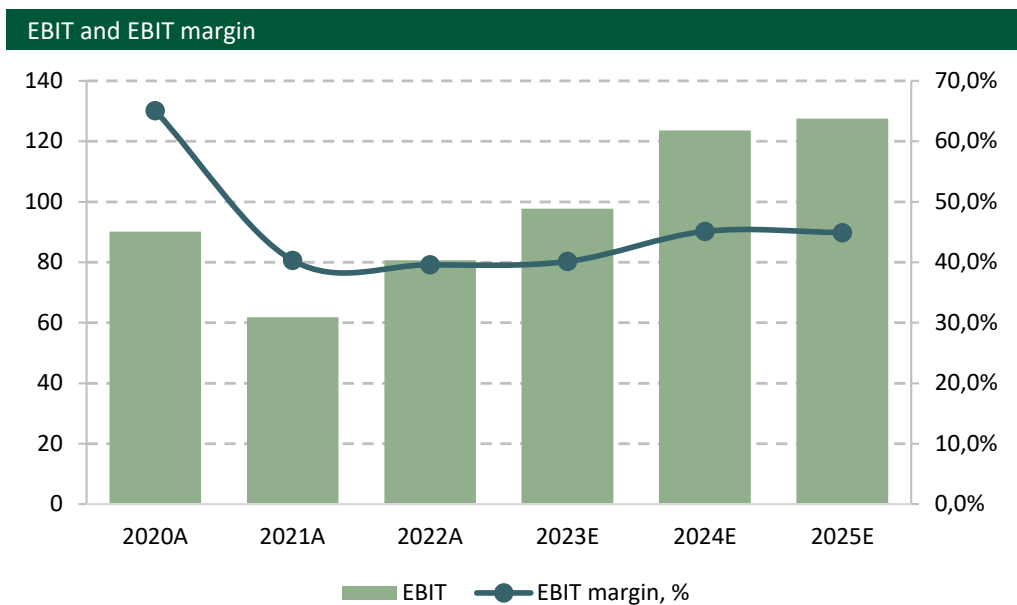
Our estimates are based on a stable cost development. We see nothing at present that could significantly hike or cut the cost base.



Source: Company, EPB

Increasing EBIT y/y for all three forecast years, plus margin expansion

Overall, this results in EBIT and an EBIT margin as shown in the chart below. We do not expect a return to the exceptionally strong margin of 2020, as this suggests a too high and thus unrealistic ROCE.



Source: Company, EPB

Investments, cash flows, and balance sheet

ASAB's balance sheet is undergoing a major transformation, the main features of which are:

- Repayment of all outstanding bonds during 2023 with values of around SEK 635m as of 28 June, SEK 128m as of 24 July, SEK 148m as of 4 August, and SEK 70m as of 8 November.
- Sale-leaseback financing from Jiangsu Financial Leasing Co Ltd for the equivalent of SEK 809m paid in June and July 2023.
- A directed share issue of some SEK 141m before costs.
- A rights issue (compensation issue), which at full participation provides around SEK 95m in net contributions.

Of these, the first three have already been implemented as of time of publication. Regarding the fourth, we believe the rights issue will be subscribed according to the terms announced by the company (some SEK 95m in net contribution).

Valuation

We have chosen to value ASAB using relative and absolute methods. Our valuation suggests a fair value of SEK 14–15 per share, which can be compared with the current share price.

Relative valuation – we use a peer group of global energy producers

We have chosen to compare ASAB to a group of international power producers. ASAB is a global power producer, exclusively focused on solar energy. As stated before, the company is in an almost unique position thanks to the stable and growing demand, its scalable model, and limited costs. At the same time, the model is extremely capital intensive, requiring high margins to provide a sufficiently high return to be able to finance the business model. We thus consider ASAB to be a power producer rather than a photovoltaic installer, and it should be valued accordingly.

Peer group, international power producers

Ticker	Market cap mkr	Topline Growth			EV/EBIT			EBIT margin			EPS growth			
		2023e	2024e	2025e	2023e	2024e	2025e	2023e	2024e	2025e	2023e	2024e	2025e	
RWE	RWE-DE	340 985	14%	-34%	-6%	6,3x	9,2x	10,0x	12%	12%	12%	0%	-35%	-15%
Endesa	ELE-ES	233 569	-25%	-4%	1%	12,3x	11,7x	10,7x	11%	12%	13%	-32%	6%	12%
EDP-Energias de Portugal	EDP-PT	204 243	0%	2%	3%	13,3x	12,8x	12,5x	15%	15%	15%	56%	11%	4%
BKW	BKW-CH	100 260	-5%	3%	6%	16,2x	15,0x	12,3x	12%	13%	15%	-28%	9%	25%
Neoen	NEOeN-FR	48 010	16%	21%	28%	21,0x	18,0x	14,1x	50%	48%	49%	51%	20%	40%
Iberdrola	IBE-ES	771 665	2%	0%	5%	0,0x	0,0x	0,0x	17%	17%	18%	10%	3%	8%
AES	AES-US	131 715	1%	2%	2%	17,7x	15,8x	14,8x	18%	20%	21%	2%	13%	9%
TransAlta	TA-CA	28 092	5%	-24%	-6%	8,1x	15,6x	15,4x	34%	23%	25%	20136%	-69%	-28%
Boralex A	BLX-CA	26 893	17%	-5%	9%	23,5x	19,7x	16,8x	30%	38%	41%	265%	2%	32%
Contact Energy	CEN-NZ	42 573	23%	3%	0%	19,0x	15,5x	14,3x	16%	19%	21%	30%	6%	5%
Volt Power Group	VPR-AU	112	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Average		232 317	5%	-4%	4%	15,3x	14,8x	13,4x	22%	22%	23%	N.m.	-3%	9%
Median		167 979	3%	1%	3%	16,2x	15,5x	14,1x	16%	18%	19%	20%	6%	8%
<i>Advanced Soltec (EPB est)</i>		<i>583</i>	<i>20%</i>	<i>12%</i>	<i>4%</i>	<i>16,4x</i>	<i>13,9x</i>	<i>13,4x</i>	<i>40%</i>	<i>45%</i>	<i>44%</i>	<i>N.m</i>	<i>N.m</i>	<i>7%</i>

Source: Factset, EPB

There are several factors that distinguish ASAB from this peer group:

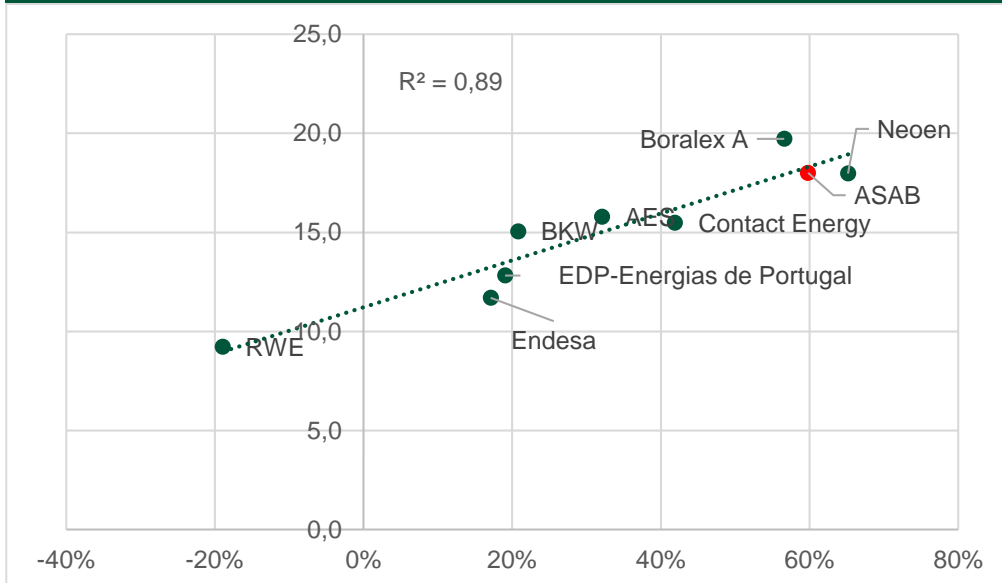
- ASAB operates solely in the Chinese market and only in solar energy.
- The company is clearly smaller – both in operations and market value on the capital markets.
- At the same time, it has considerably higher growth and margins versus the peer group.

We consider it wrong to simply take the average of the peer group's valuation multiples, as ASAB's higher growth and elevated margins suggest a higher multiple. (For discounts, see Fair value calculation below.) We have thus chosen to create a measure of value creation, defined as the combined total of EBIT growth and EBIT margin. It is reasonable that higher value creation in the form of profitable growth results in a higher justified multiple. We weight the factors 50/50.

We then plot the value creation of the peer group in relation to the 2024e EV/EBIT multiple in a scatter chart. We note that the spread clusters around the regression line with only one exception (Transalta). There are no valuation multiples for Iberdrola. We have thus discarded it from the charts below. Following this, we have added ASAB at a multiple that correlates with the rest of the peer group – marked in red. In this case, we use a justified EV/EBIT multiple of 18x, which places the company close to the regression line.

We note that the R^2 factor is high using both approaches (0.89 and 0.79), depending on whether we use only 2024 as the basis for all parameters (the upper chart on the following page) or the average of EBIT growth in 2023–2025e combined with the EBIT margin for 2024e and EV/EBIT for 2024e (lower chart). We thus believe the model holds a good explanatory value in this context.

Value creation: EBIT growth 2024e vs 2023e + EBIT margin 2024E and EV/EBIT 2024e

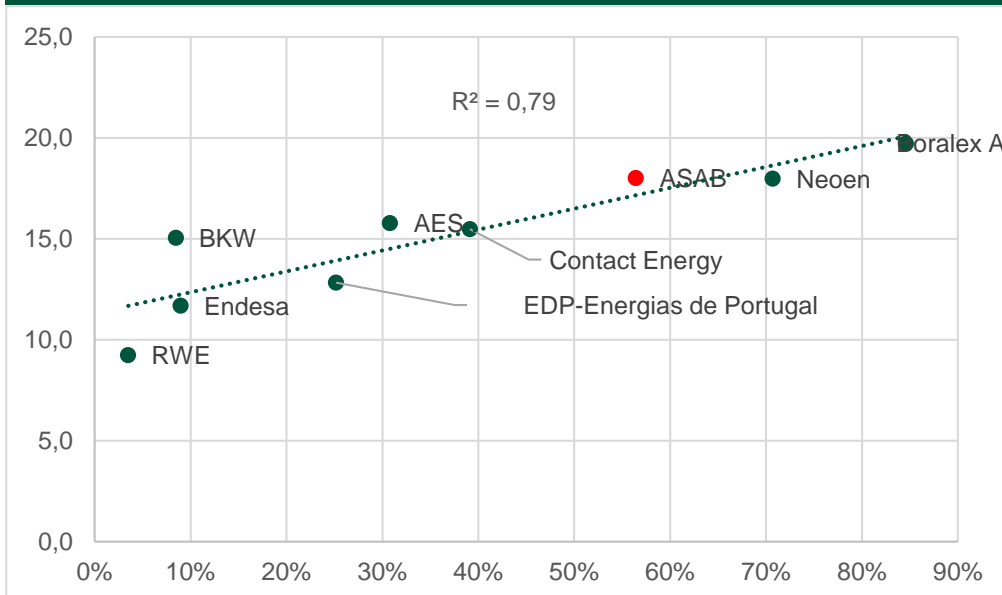


Source: Factset, EPB

Similar results on average EBIT growth for 2023e–2025e

Although we use an average of 2023e–2025e EBIT growth combined with the 2024e EBIT margin, the result is the same, albeit with a slightly different clustering around the regression line. This is also reflected in a lower R² value of 0.79.

Value creation: avg. EBIT growth 23e–25e + EBIT margin 2024E and EV/EBIT 2024E



Source: Factset, EPB

Overall, we see an EV/EBIT multiple of 18x as justified for the ASAB share.

Fair value calculation

In calculating our fair value, we have used a justified EBIT multiple of 18x, as shown above, and applied this to our 2024e EBIT estimate, as this is the first full year with the new financing structure. We have subtracted net debt and divided the value based on our estimates for the number of fully diluted shares in 2024e.

We have then applied a discount of 25%. This is based on the following arguments:

- ASAB is in the midst of extensive refinancing and the outcome of this is uncertain.
- ASAB is still a small entity, admittedly with considerable exposure to the growing market of solar energy, but its size should imply a discount in the short term.
- There is, of course, a political risk in being exposed to a single market, especially one characterised by current geopolitical tension.

As the company delivers commercially viable financing, continues on its growth path, and hopefully sees its geopolitical risk decrease, we see a high probability that we can trim this discount, with the share thus valued in line with its value creation, relative to the global power producers in our peer group.

Fair value calculation

EBIT 2024e, SEKm	122
EV/EBIT multiple	18
Enterprise value 2024e, SEKm	2197
Net debt 2024e, SEKm	-935
Equity value 2024e, SEKm	1262
Number of shares, m	65,6
Value per share, SEK	19,2
Discount	25%
Basis for fair value, SEK / share	14,4
Fair value range, SEK / share	14 - 15

Source: Company, EPB

In the table below, we provide a sensitivity analysis at various levels of EV/EBIT and discount.

Sensitivity analysis – fair value

EV/EBIT	Discount		
	20,0%	25,0%	30,0%
14	9,4	8,8	8,3
16	12,4	11,6	10,9
18	15,4	14,4	13,5
20	18,4	17,2	16,1
22	21,4	20,0	18,7

Source: Company, EPB

Absolute valuation

We use a standardised DCF model in our absolute valuation. We apply a required rate of return of 11%. We use a risk-free interest rate of 2.5%, a market premium of 5.5%, and a small cap premium of 4% as the basis. We apply the same required rate of return to loans and equity capital for reasons of prudence. Recent years have shown that debt financing for smaller companies is often at interest rates closely matching the required return on equity, which has affected ASAB in particular.

We have then trimmed the required rate of return by one percentage point owing to its low company-specific risk. ASAB has high margins, stable revenues, a scalable model exposed to a market with solid growth potential, and now – owing to the current refinancing – a manageable balance sheet. We thus believe some deduction is justified. Below, we present an overview of our DCF calculations and a sensitivity analysis with different assumptions for the required rate of return, long-term growth, and the EBIT margin.

DCF calculations – overview

Valuation output		WACC assumptions		Terminal value assumptions	
Sum of PV of FCF (explicit period)	878	Risk free nominal rate	2,5%	Long term growth rate	4,0%
PV of terminal value (perpetuity formula)	1 235	Risk premium	5,5%	Long term EBIT margin	45,0%
Enterprise value	2 113	Small cap premium	4,0%	Depreciation (% of sales)	3,0%
Latest net debt	1 112	Adjustment	-1%	Capex (% of sales)	3,0%
Minority interests & other	0	WACC	11,0%	Working cap. (% of sales)	3,0%
Equity value	1 002	Tax rate			15%
No. of shares,(millions)	64				
Equity value per share	16				

Source: Company, EPB

DCF – sensitivity analysis

		Long-term growth rate					Long-term EBIT margin						
		3,0%	3,5%	4,0%	4,5%	5,0%			40,0%	42,5%	45,0%	47,5%	50,0%
WACC	9,0%	25	28	32	36	42	9,0%	27	30	32	34	36	
	10,0%	18	20	22	25	29	10,0%	19	21	22	24	26	
	11,0%	12	14	16	18	20	11,0%	13	14	16	17	18	
	12,0%	8	9	11	12	14	12,0%	9	10	11	12	13	
	13,0%	5	6	7	8	9	13,0%	5	6	7	8	9	

Source: Company, EPB

Risks

ASAB is subject to risks and the following should capture most risks to which it is exposed, although it should not be considered the full picture:

- Interest rate risks – the company is exposed to floating interest rates on the bulk of its funding.
- Refinancing risks – the company needs to refinance its debt portfolio given the capital-intensive nature of its business.
- Associated risks – the company is partly financed by its two largest owners, Soltech and ASP, along with their associated companies.
- Political risks – operating in China, the company is exposed to political changes in the highly regulated Chinese society.
- Commercial risks – the company is exposed to commercial risks primarily in the form of fluctuating electricity prices and to commercial partners through the installation companies, sales channels, and partners responsible for the financial management of its photovoltaic systems.
- Supplier risks – ASAB is dependent on external suppliers for the purchase of solar panels since it lacks its own production.
- Currency risks – ASAB is chiefly exposed to movements in the Chinese yuan versus the Swedish krona, representing a translation difference in its equity.

Overall, we believe the company's potential justifies the risks associated with an investment in ASAB, but an investor in the ASAB share needs to consider the risks to which the company is exposed. One important aspect of the currency risk is that it will diminish in the future as the new debt financing consists of local currency loans, meaning revenues and costs will develop more in line with each other than previously given large currency movements.

ESG

Advanced Soltech operates in the renewable energy sector, with a vision of contributing to the climate transition. Its overarching goal is to generate good shareholder returns. Being profitable is a prerequisite for it to build a robust company for the long term that focuses on sustainability issues. ASAB intends to promote sustainable financing, responsible investments, and the prioritisation of financial counterparts with a good sustainable business agenda/ethics.

Environment

ASAB offers distributed solar power solutions, meaning it contributes to the transition from energy from fossil fuels, primarily coal, to renewable energy like solar power. Products and services should be produced with the minimum use of resources and energy and with a low environmental impact. All solar panels used in ASAB's projects are collected for recycling after use. Sensible resource management is a guiding principle for the company, and it focuses on the use of resources – whether energy, premises, waste, travel or transport – and on reasonable efforts to reduce these.

Social

ASAB safeguards the integrity of its stakeholders and partners, protecting and managing information responsibly. It has established a clear focus on sustainability and works actively to ensure its partners share its values and code of conduct. It does so by using components that are origin-labelled to ensure that no human rights violations have occurred in their production, or in the extraction of raw materials. The company considers its employees one of its most important assets. According to the company, their commitment, development and expertise create an essential culture, and this also includes partners. The company strives for a working climate and environment that is the best possible for all employees. As an employer, ASAB takes responsibility by offering each employee a challenging and responsible job.

Governance

Diversity enriches and so the company works actively with diversity and equality issues, supporting and following the principles of the UN Global Compact. ASAB is a listed Swedish and its corporate governance is based on Swedish law, primarily the Companies Act, the company's articles of association, internal rules (including instructions and policies), and Nasdaq First North Growth Market Rulebook. The board comprises 16% women, while the management team is 20% women.

Ownership structure

The largest owner in Advanced Soltech in terms of both capital and votes is Soltech Energy Sweden AB (28.69%). The next largest is Advanced Solar Power (Hangzhou), holding 27.61%, and Christer Brandberg & Company with 4.58%.

Board of directors

Advanced Soltech has six ordinary members (elected by the general assembly), including the chair of the board.

Fredric Telander – chair

Board member since 2016 and chair of the board since 2020. Currently a board member in Sactum AB. Former partner at EIG Venture Capital Ltd and CEO of Soltech Energy. Not independent in relation to the company and management. Not independent in relation to the company's largest shareholders.

Stefan Ölander – board member

Board member since 2016. Current CEO and board member at Soltech Energy Sweden AB (publ), Territorium AB, and Ianua Invest AB, as well as chair of the board at Afsens Fastighetsbolag AB, ST-Solar Holding AB, Swede Energy Power Solutions AB, and Soldags i Sverige AB, among others. Former head of communications at SEB and Kinnevik, and the founder of Rewir. Not independent in relation to the company and management. Not independent in relation to the company's largest shareholders.

Ben Wu – board member

Board member since 2016. Current CEO of Advanced Solar Power (Hangzhou) Inc and board member at Advanced Solar Power (Hong Kong) Limited, Advanced Solar Power Cayman Limited, and HuBei KaiLong Longyan Energy Technology Co Ltd. Former founder and CEO of thin film manufacturer Advanced Solar Power Hangzhou. Not independent in relation to the company and management. Not independent in relation to the company's largest shareholders.

Gang Bao – board member

Board member since 2016. Current board member at HuBei KaiLong Longyan Energy Technology Co Ltd and Advanced Soltech Renewable Energy (Hangzhou) Co. Ltd, and CEO at Advanced Soltech Renewable Energy. Not independent in relation to the company and management. Independent in relation to the company's largest shareholders.

Vivianne Holm – board member

Board member since 2020. Current board member at Soltech Energy Sweden AB (publ), Hexicon AB, and Volta Greentech AB. Previously active in equity research and corporate finance and as an advisor with a specific focus on business development, capital raising, and investor relations. Independent in relation to the company and management. Independent in relation to the company's largest shareholders.

Patrick de Muynck – board member

Board member since 2020. Currently chair of the board at Ymer SC AB, Ymer SC Fund 1 AB, Ymer SC AC AB, Brocc Holding AB, Skalmsta Ridcenter AB, and Dagar hf, as well as board member at Kara Connect IVS, Kara Connect ehf., Skogsliden Finance AB, Brocc Finance AB, and Brocc AB (publ). Former partner at EQT and previously head of credit and a member of the management team. Independent in relation to the company and management. Independent in relation to the company's largest shareholders.

Management

Max Metelius – VD

CEO since 2020. Current board member at Advanced Soltech Renewable Energy (Hangzhou) CO Ltd. Former co-founder of Alight, previously in business development within solar energy at BMI, and former CFO/COO at Advanced Soltech.

Lars Höst – CFO

CFO since 2020. Current board member at Host Financial Services AB. Alternate board member at ST-Solar Holding AB. Former CFO and acting CEO at Ortivus AB, as well as CFO/head of finance at Sitetel Sweden/Northstar Batteries and Gunnebo Nordic.

Cecilia Markborn (Xia) – General Counsel

Company lawyer since 2021. Former lawyer from Setterwalls Advokatbyrå and previously active in M&A, venture capital, and corporate law for Swedish and international companies.

Gang Bao – CEO of Advanced SolTech Renewable Energy

CEO since 2020. Current board member at Advanced Soltech Renewable Energy (Hangzhou) Co. Ltd. and HuBei KaiLong Longyan Energy Technology Co Ltd.

Fredric Telander – working board member

Current board member at Advanced Soltech Renewable Energy (Hangzhou) Co. Ltd and Sactum AB. Former partner at EIG Venture Capital Ltd and CEO of Soltech Energy.

Income statement

	2019	2020	2021	2022	2023e	2024e	2025e
Net sales	60	86	117	157	184	200	210
Other operating income	45	52	36	47	60	74	74
Total revenues	105	139	154	204	244	274	284
Other operating costs	-15	-24	-43	-55	-64	-68	-72
EBITDA	90	115	111	149	173	206	212
Items affecting comparability	0	0	0	0	-7	0	0
EBITDA, adjusted	90	115	111	149	180	206	212
Depreciation	-27	-37	-48	-67	-74	-81	-83
EBITA, adjusted	63	78	63	82	106	125	129
Amortisation of intangible assets	-2	-2	-2	-3	-3	-3	-3
EBIT	61	76	61	79	96	122	126
EBIT, adjusted	61	76	61	79	104	122	126
Net financial items	-79	-163	-37	-114	-122	-64	-64
Profit/loss before tax	-18	-87	24	-35	-26	58	62
Profit/loss before tax, adjusted	-18	-87	24	-35	-18	58	62
Total taxes	4	-10	-7	6	0	0	0
Net income	-14	-97	16	-29	-26	58	62
Net income, adjusted	-14	-97	16	-29	-18	58	62
Revenue growth	-	32%	11%	33%	20%	12%	4%
EBIT margin, adjusted	>100%	88,2%	51,7%	50,6%	56,4%	61,0%	60,0%
EPS, adjusted	-2 795	-444	0,82	-0,72	-0,34	0,89	0,95
EPS growth, adjusted	-	N.m.	N.m.	N.m.	N.m.	N.m.	7%

Source: Advanced Soltech Sweden AB, EPB

Cash flow analysis

	2019	2020	2021	2022	2023e	2024e	2025e
EBIT	61	76	61	79	96	122	126
Other cash flow items	-32	-73	-56	-34	-48	18	22
Changes in working capital	16	-38	99	131	12	10	8
Cash flows from operating activities	45	-34	104	177	60	150	156
Investments in fixed assets	-433	-136	-296	-359	-368	-40	-164
Investments in intangible fixed assets	-47	0	0	0	0	0	0
Other cash flow from investments	-28	1	-3	55	0	0	0
Cash flows from investment activities	-509	-135	-299	-305	-368	-40	-164
Free cash flows	-464	-169	-195	-128	-308	110	-8
Rights issues / buybacks	0	146	227	17	221	0	0
Changes in liabilities	484	49	47	6	78	-130	0
Other items	0	0	-1	-1	0	0	0
Cash flows from financing activities	484	195	273	21	299	-130	0
Cash flows	20	26	78	-106	-9	-20	-8
Net debt	776	809	798	958	1 045	935	943

Source: Advanced Soltech Sweden AB, EPB

Balance sheet

	2019	2020	2021	2022	2023e	2024e	2025e
Assets							
Other intangible assets	47	42	45	45	42	40	37
Tangible fixed assets	955	980	1 374	1 724	2 018	1 977	2 058
Financial fixed assets	91	88	90	43	43	43	43
Other fixed assets	9	8	1	6	8	10	10
Total fixed assets	1 102	1 118	1 511	1 819	2 112	2 070	2 148
Trade receivables	23	24	36	36	44	49	51
Other current assets	26	42	45	57	31	31	31
Cash and cash equivalents and short-term investments	50	73	161	61	52	32	24
Total current assets	99	139	242	155	128	113	107
Total assets	1 201	1 257	1 753	1 973	2 240	2 183	2 255
EQUITY AND LIABILITIES							
Equity	175	203	499	521	716	774	836
Total equity	175	203	499	521	716	774	836
Long-term interest-bearing liabilities	788	883	912	0	967	837	837
Other long-term liabilities	72	70	80	87	87	87	87
Total long-term liabilities	860	953	992	87	1 054	924	924
Short-term interest-bearing liabilities	37	0	47	1 019	130	130	130
Trade payables	102	57	130	228	207	233	241
Other current liabilities	27	45	84	119	133	122	123
Total current liabilities	166	102	261	1 365	470	485	495
TOTAL EQUITY AND LIABILITIES	1 201	1 257	1 753	1 973	2 240	2 183	2 255

Source: Advanced Soltech Sweden AB, EPB

Growth and margins

	2019	2020	2021	2022	2023e	2024e	2025e
Revenue growth	-	32%	11%	33%	20%	12%	4%
EBITDA growth, adjusted	-	28%	-4%	35%	21%	14%	3%
EBIT growth, adjusted	-	25%	-20%	31%	30%	18%	3%
EPS growth, adjusted	-	N.m.	N.m.	N.m.	N.m.	N.m.	7%
EBITDA margin	>100%	>100%	94,4%	95,0%	94,1%	>100%	>100%
EBITDA margin, adjusted	>100%	>100%	94,4%	95,0%	98,0%	>100%	>100%
EBIT margin	>100%	88,2%	51,7%	50,6%	52,5%	61,0%	60,0%
EBIT margin, adjusted	>100%	88,2%	51,7%	50,6%	56,4%	61,0%	60,0%
Profit margin, adjusted	Neg.	Neg.	13,8%	Neg.	Neg.	29,0%	29,6%

Source: Advanced Soltech Sweden AB, EPB

Profitability

	2019	2020	2021	2022	2023e	2024e	2025e
ROE, adjusted	Neg.	Neg.	5%	Neg.	Neg.	8%	8%
ROCE, adjusted	Neg.	7%	12%	7%	6%	7%	7%
ROIC, adjusted	Neg.	8%	5%	6%	6%	7%	7%

Source: Advanced Soltech Sweden AB, EPB

Capital efficiency

	2019	2020	2021	2022	2023e	2024e	2025e
Trade receivables / total revenues	22%	17%	24%	18%	18%	18%	18%
Total current liabilities / total expenses	>100%	>100%	>100%	>100%	>100%	>100%	>100%
Working capital / total revenues	-76%	-26%	-87%	-124%	-108%	-100%	-99%
Capital turnover rate	0,1x	0,1x	0,1x	0,1x	0,1x	0,2x	0,2x

Source: Advanced Soltech Sweden AB, EPB

Financial position

	2019	2020	2021	2022	2023e	2024e	2025e
Net debt	776	809	798	958	1 045	935	943
Equity asset ratio	15%	16%	28%	26%	32%	35%	37%
Net debt/equity ratio	4,4x	4,0x	1,6x	1,8x	1,5x	1,2x	1,1x
Net debt / EBITDA	8,6x	7,0x	7,2x	6,4x	6,0x	4,5x	4,4x

Source: Advanced Soltech Sweden AB, EPB

Share data

	2019	2020	2021	2022	2023e	2024e	2025e
EPS	-2 795	-444	0,82	-0,72	-0,48	0,89	0,95
EPS, adjusted	-2 795	-444	0,82	-0,72	-0,34	0,89	0,95
FCF per share	-92 807	-776	-9,86	-3,17	-5,74	1,67	-0,12
Dividend per share	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Equity per share	34 976	470	12,8	12,5	10,9	11,8	12,8
Number of shares at year-end, m	0,01	0,43	39,1	41,6	65,6	65,6	65,6
Number of shares after dilution, average	0,01	0,22	19,8	40,3	53,6	65,6	65,6

Source: Advanced Soltech Sweden AB, EPB

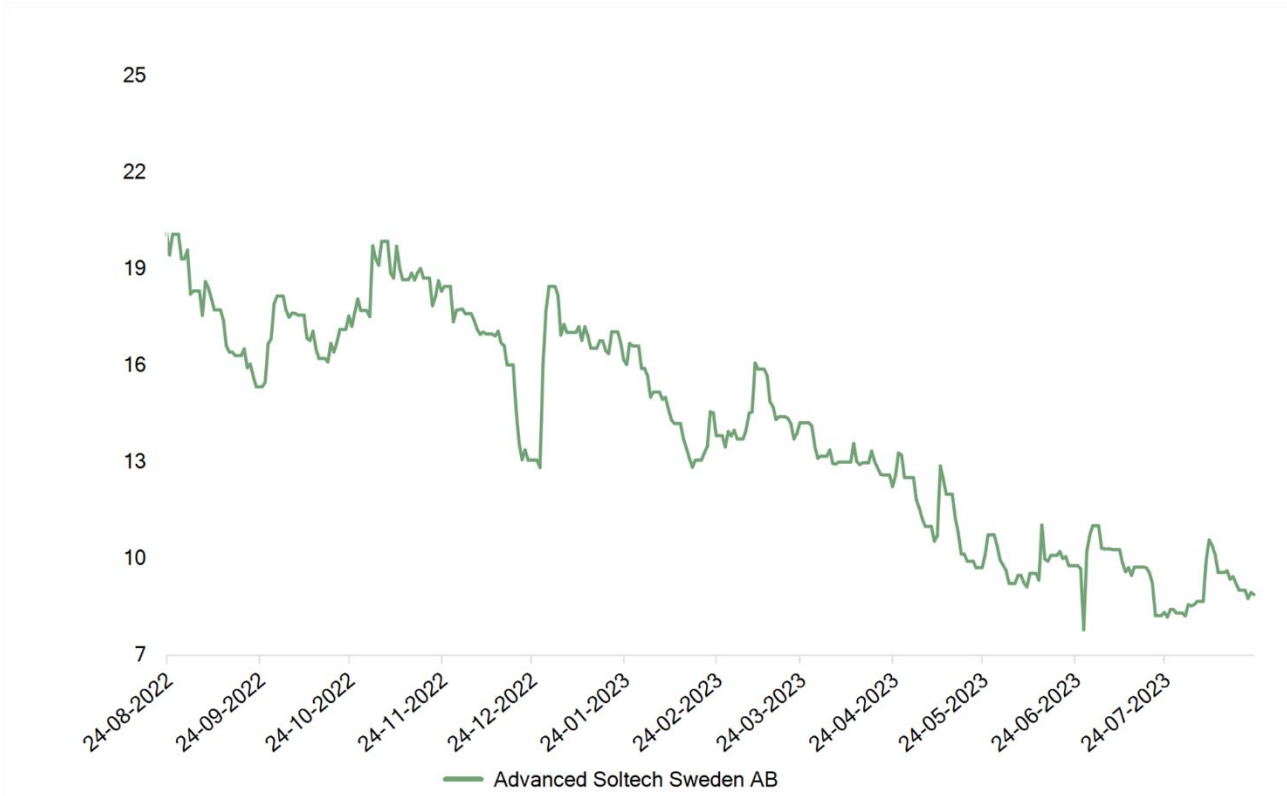
Valuation

	2019	2020	2021	2022	2023e	2024e	2025e
P/E, adjusted	Neg.	Neg.	56,3x	Neg.	Neg.	10,3x	9,7x
Price/book value	Neg.	Neg.	3,6x	1,5x	0,8x	0,8x	0,7x
P/FCF	Neg.	Neg.	Neg.	Neg.	Neg.	5,5x	Neg.
FCF yield	Neg.	Neg.	Neg.	Neg.	Neg.	18%	Neg.
Dividend yield	Neg.	Neg.	0,0%	0,0%	0,0%	0,0%	0,0%
Payout ratio, adjusted	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
EV/Sales	Neg.	Neg.	16,9x	8,3x	7,0x	6,2x	6,0x
EV/EBITDA, adjusted	Neg.	Neg.	23,4x	11,4x	9,4x	8,2x	8,0x
EV/EBIT, adjusted	Neg.	Neg.	42,7x	21,4x	16,4x	13,9x	13,4x
EV	Neg.	Neg.	2 592	1 701	1 694	1 694	1 694
Share price	-	-	46,3	18,7	9,2	9,2	9,2

Source: Advanced Soltech Sweden AB, EPB

Share price and average fair value

Advanced Soltech Sweden AB (ASAB SS EQUITY)



Source: EPB, IDC

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For more detailed information about valuation models, click [here](#).

General

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