

# Debt Financing for Further Expansion of Cell and Module Production

June 16, 2021

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# Meyer Burger secures EUR 185 million debt financing for further expansion of cell and module production from 2022

## Syndicated loan

Lenders	Consortium led by Ostsächsische Sparkasse Dresden, Germany
Quantum	EUR 125 million
Maturity	June 30, 2027
Purpose	Expansion of existing Bitterfeld-Wolfen and Freiberg (Germany) production sites

## Factoring facility

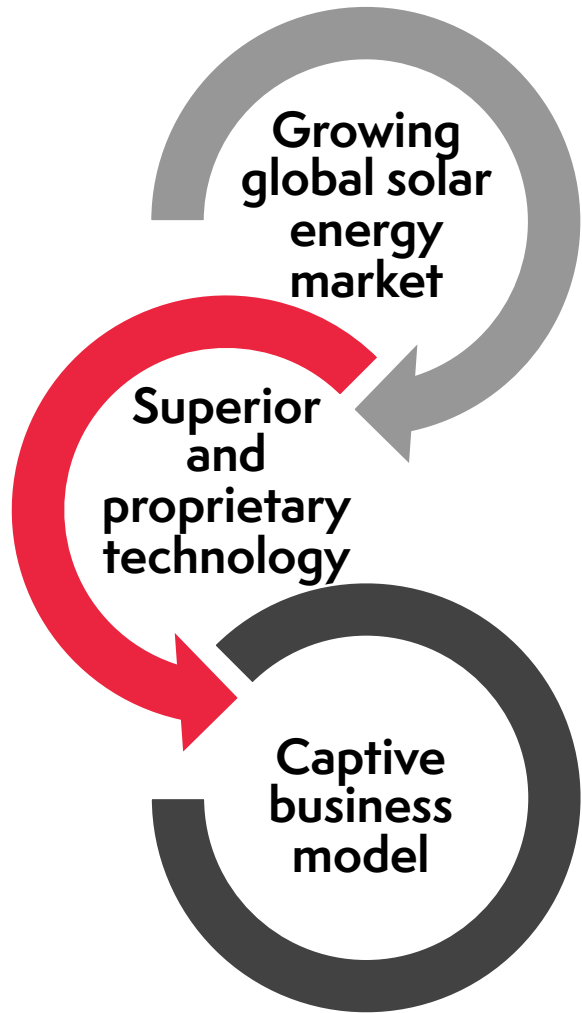
Lenders	German working capital finance specialist bank
Quantum	EUR 60 million
Maturity	June 30, 2024
Purpose	Working capital

- The syndicated loan agreement was signed on June 15, 2021
- Eighty percent of the syndicated loan volume is guaranteed by the Federal Republic of Germany and by the federal states of Saxony and Saxony-Anhalt
- Both credit facilities with standard market conditions, including usual financial covenants
- The disbursement conditions of the syndicated loan agreement require Meyer Burger to raise additional financing in the amount of EUR 100 million by June 2022



**Enables accelerated expansion plan**

# Cornerstones of our strategy remain unchanged



- After entering the residential and commercial rooftop segment with our initial 400 MW capacity, Meyer Burger intends to enter the high-volume utility segment with tailored products – meeting strongly growing solar market demand, with 13% CAGR<sup>1</sup> expected
- Based on Meyer Burger’s 3-year technology advantage over standard technology (confirmed by Fraunhofer Institute) and based on our successful industrialization, we continue to lead with our heterojunction/SmartWire technology and plan to enrich our product portfolio continuously
- The full value of Meyer Burger’s technology advantage can be captured as we exclusively control the patent-protected and more climate-friendly heterojunction/SmartWire technology

1) Source: Apricum – The Cleantech Advisory, 2021, center scenario



**High, sustained profit levels can be achieved on the basis of a superior technology and the captive business model**

# Meyer Burger - Almost 70 years of experience, including 40 years in PV

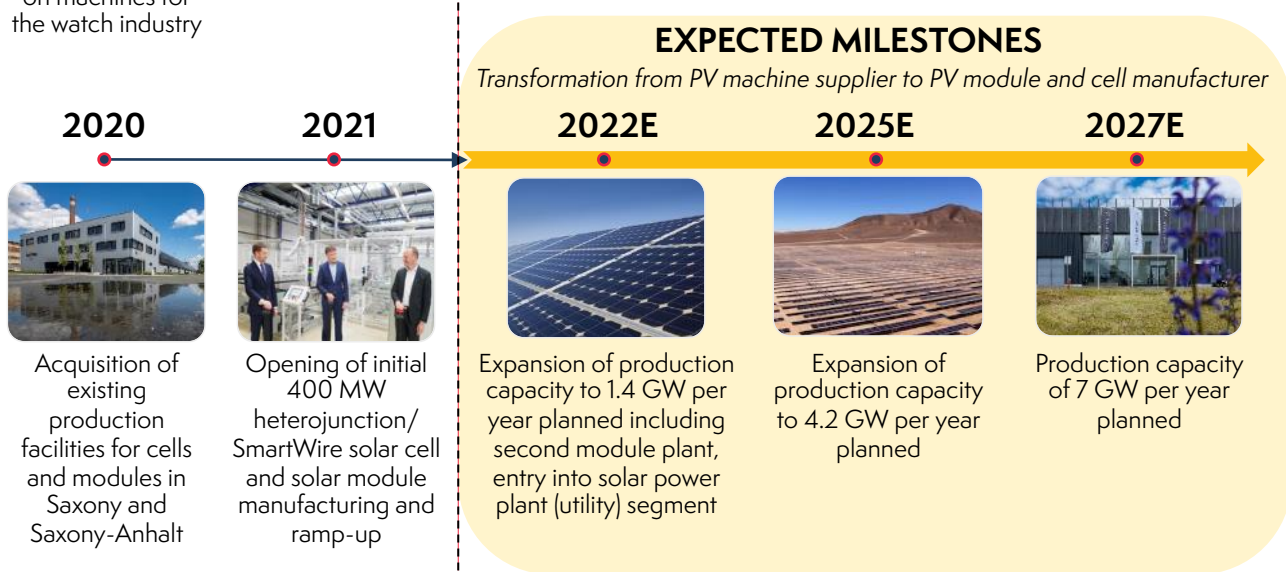
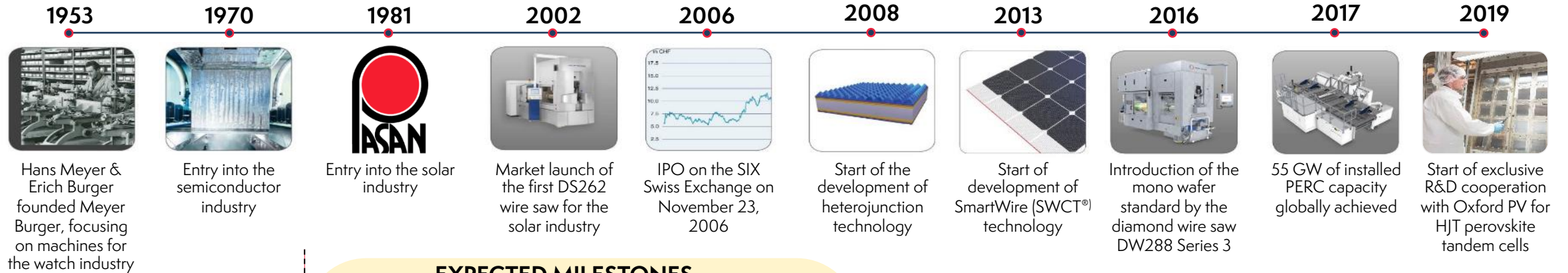
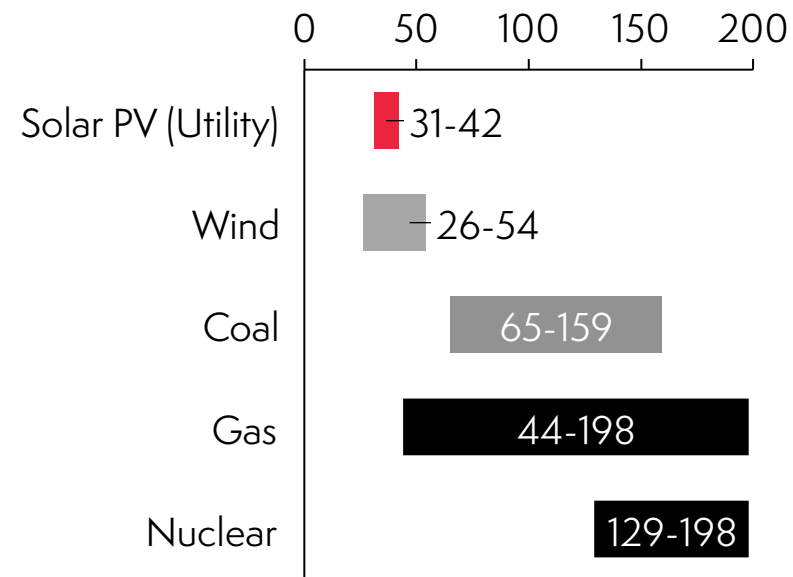


Photo: Grand opening ceremony solar cell factory Thalheim, May 18, 2021 with Saxony-Anhalt Prime Minister Dr. Haseloff (left), MBTN CEO Gunter Erfurt and Saxony-Anhalt Minister Prof. Armin Willingmann

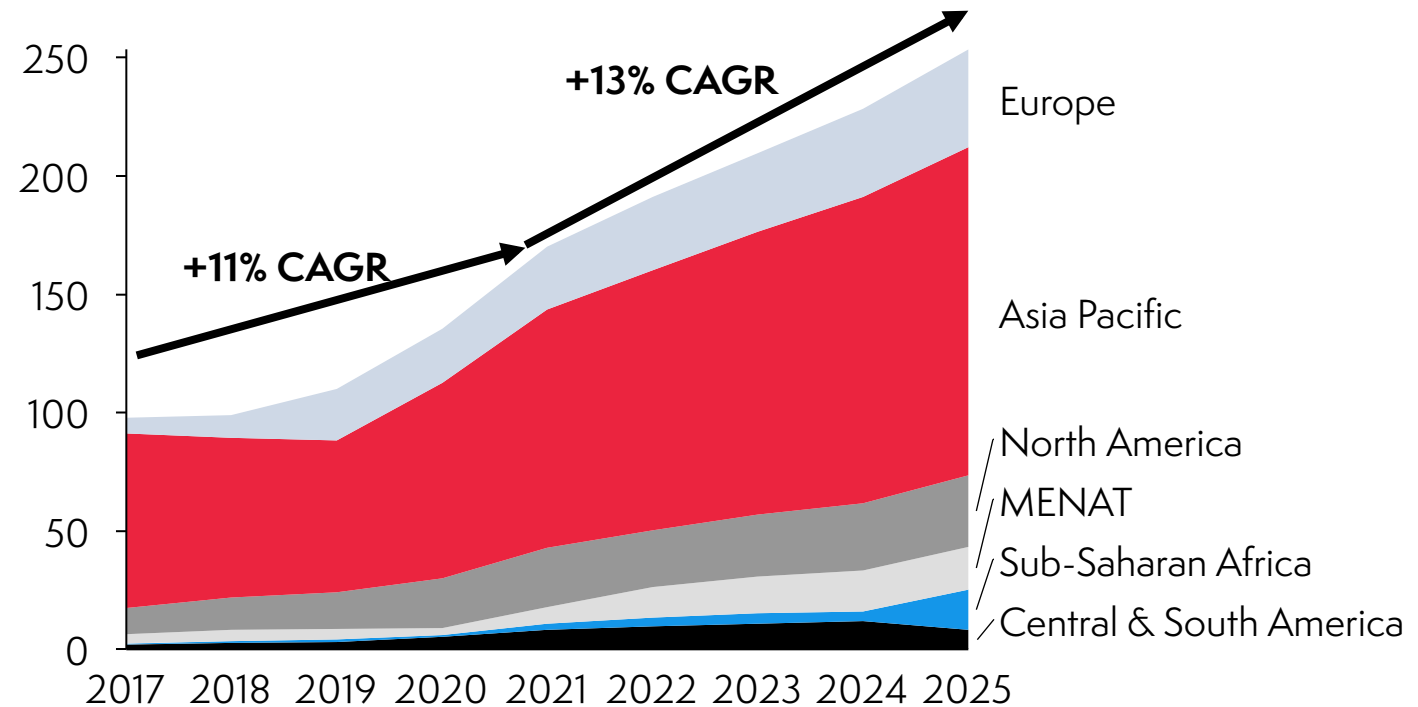
# Solar markets expected to continue growth worldwide due to the competitive economics – now cheaper than all fossils

Solar already among the most competitive sources of electricity<sup>1</sup>

Levelized cost of energy (LCOE) [USD/MWh]



Expected global solar market size [GW]



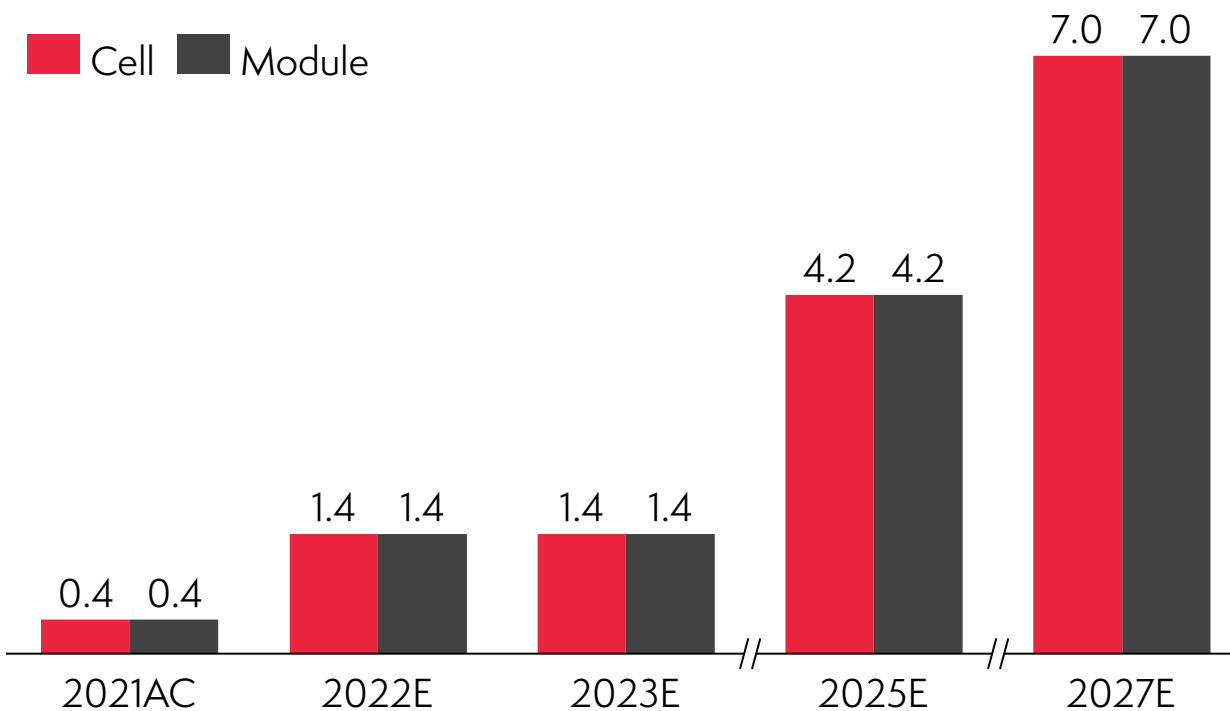
1) Source: Lazard Oct 19, 2020

2) Source: Apricum – The Cleantech Advisory, 2021, center scenario

# Following the successful build-up of our 0.4 GW capacity, we are accelerating our international capacity growth

## Cell and module production

### Meyer Burger planned production capacity, year-end [GW]



Source: Meyer Burger business plan (June 2021)

### Revised roadmap:

- Enabled by the credit facility, we pull in our plan to achieve 1.4 GW nameplate cell and module capacity already at the end of 2022
- We are balancing production volumes for cells and modules in order to focus entirely on higher-margin sales of solar modules
- We plan to set up production of high-efficiency cells and modules with the intent to manufacture 1 GW of solar modules in Freiberg, Germany and initially 0.4 GW at a new site by end of 2022
- The selection process for the second module factory site is ongoing

# Value-oriented segment strategy in selected markets

Meyer Burger is focusing its PV cell and module sales activities on the following segments and markets:

## Segments

- 1 Rooftop (residential and small commercial) 2 Utility-scale<sup>1</sup>

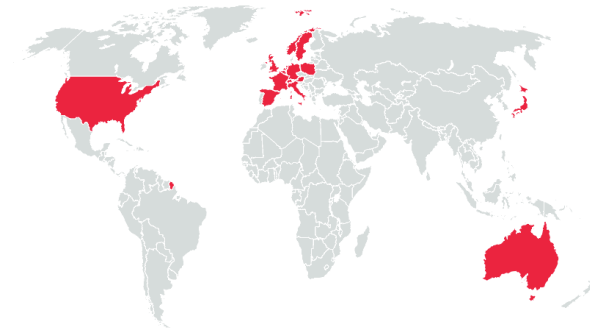


## Targeted segments:

- Rooftop (premium segment): Customers value Meyer Burger technology for its high performance, quality and aesthetics
- Utility-scale: Advantages of Meyer Burger technology are recognized in this very price-sensitive segment, because they enable lower electricity generation costs (LCOE) compared to standard technology

1) May include large commercial segment

## Focus markets



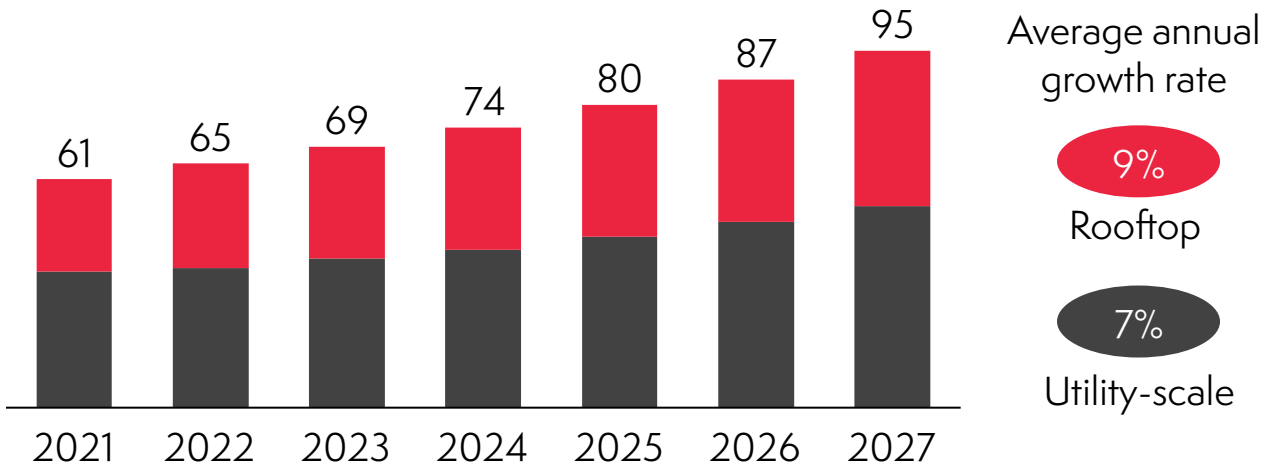
**Focus markets:** Europe, USA; planned: Australia, Japan

- Large market size
- Price premium is achievable and accepted by market participants

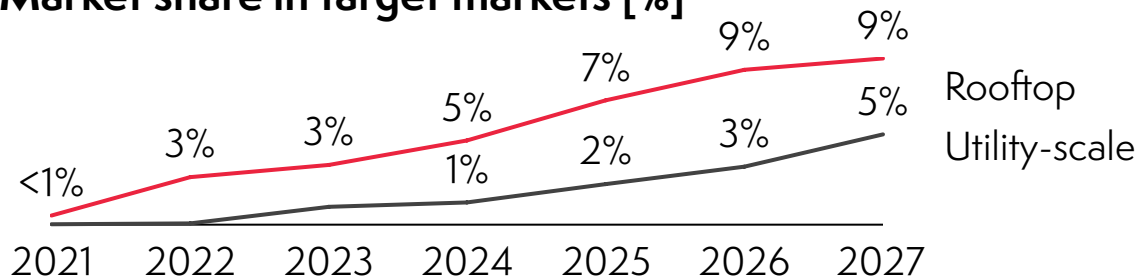


# Meyer Burger pursues value-oriented segment strategy to gain market share

Annual PV market size in target markets<sup>1</sup> [GW]





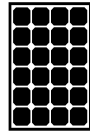

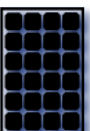

Market share in target markets [%]



- Rooftop:** Meyer Burger focuses on the high-margin premium segment for residential and small C&I customers; numerous framework agreements with European distributors have been signed; orders are being continuously received
- Utility-scale:** Market share to be gradually increased once pilot projects have proven the “bankability” and the higher energy yield per area in practice

Sources: IHS Markit, IEA, SolarPower Europe, JPEA, SEIA, AU CER, Apricum – The Cleantech Advisory, 2021, Meyer Burger business plan; 1) Europe, USA, Australia, Japan

# Three strong variants: the Meyer Burger 120 half-cell module

Meyer Burger Black	Meyer Burger White	Meyer Burger Glass
"The elegant one"	"The high-performer"	"The special one"
 120 GBb 	 120 GBw 	 120 GGt 
<ul style="list-style-type: none"> <li>• Black backsheet</li> <li>• <b>375–395 W</b></li> <li>• 20.4%–21.5%</li> <li>• 1767 x 1041 mm</li> <li>• 35 mm frame height</li> <li>• 19.7 kg</li> <li>• 1,000 V</li> </ul>	<ul style="list-style-type: none"> <li>• White backsheet</li> <li>• <b>380–400 W</b></li> <li>• 20.7%–21.7%</li> <li>• 1767 x 1041 mm</li> <li>• 35 mm frame height</li> <li>• 19.7 kg</li> <li>• 1,000 V</li> </ul>	<ul style="list-style-type: none"> <li>• Transparent glass backsheet</li> <li>• <b>370–390 W</b></li> <li>• 20.6%–21.8%</li> <li>• Bifaciality factor 90%</li> <li>• 1722 x 1041 mm</li> <li>• 35 mm frame height</li> <li>• 24.4 kg</li> <li>• 1,500 V</li> </ul>

Notes: GB – Glass-Backsheet, GG – Glass-Glass, b – black, t – transparent, w – white;  
 1) Potential-induced degradation; 2) Dynamic mechanical load

## Certifications pursued:

Standard	IEC 61215, IEC 61730 UL 61730-1 UL 61730-2
PID <sup>1</sup>	IEC 62804
Energy Rating	IEC 61853
Salt mist	IEC 61701
Ammonium	IEC 62716
DMC2	IEC 62782
Dust & sand	IEC 60068
UK	MCS
Italy	Fire Class 1
France	Carbon ftp

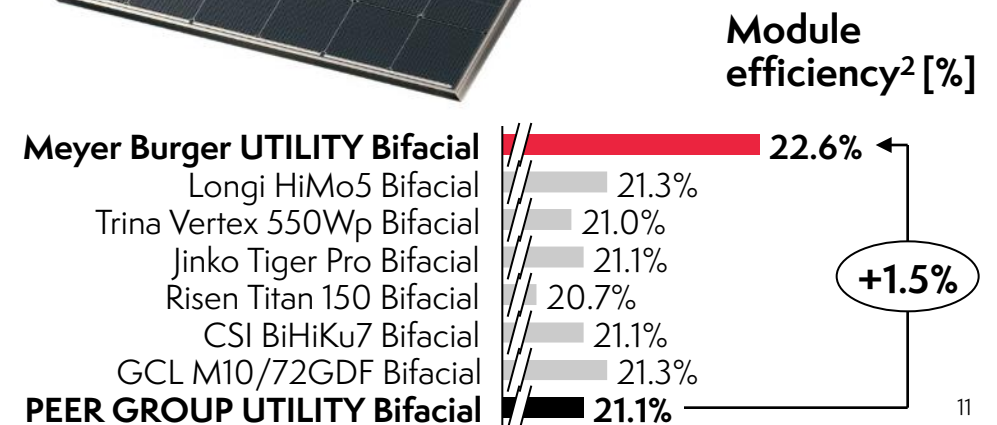
# Meyer Burger is driving the solar module product evolution in utility segment for attractive LCOE expected from 2022

## Planned product features:

- Standard utility sizes based on 72 M10 (182 x 182mm<sup>2</sup>) solar cells
- Specific new features allowing glass-backsheet module efficiencies of up to 22.9% and STC rated power of up to 570 W, glass-glass bifacial module of up to 22.6% and STC rated power of up to 560 W
- Extended warranties; PVEL, VDE and other certifications for bankability

## Production plan:

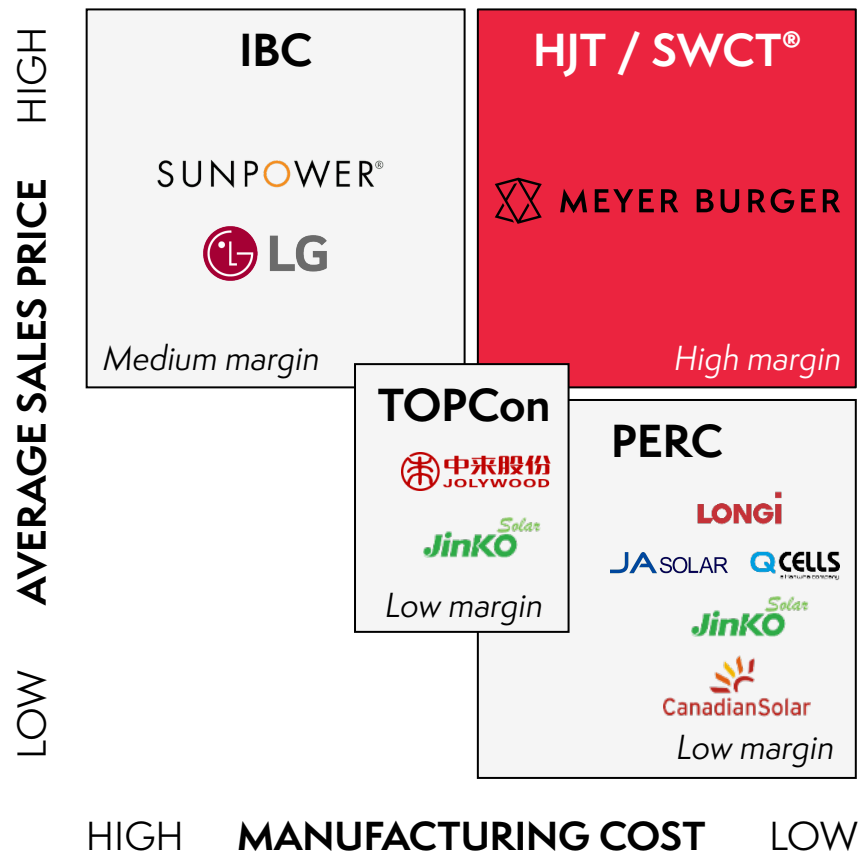
- The planned new module plant is expected to produce up to 400 MW of utility modules per year, but could also be used to produce rooftop modules in line with market demand



1) Source: Company data sheets, 2) For Meyer Burger expected front side module efficiency according current product planning

# Meyer Burger can obtain a favorable market positioning, enabling high margins

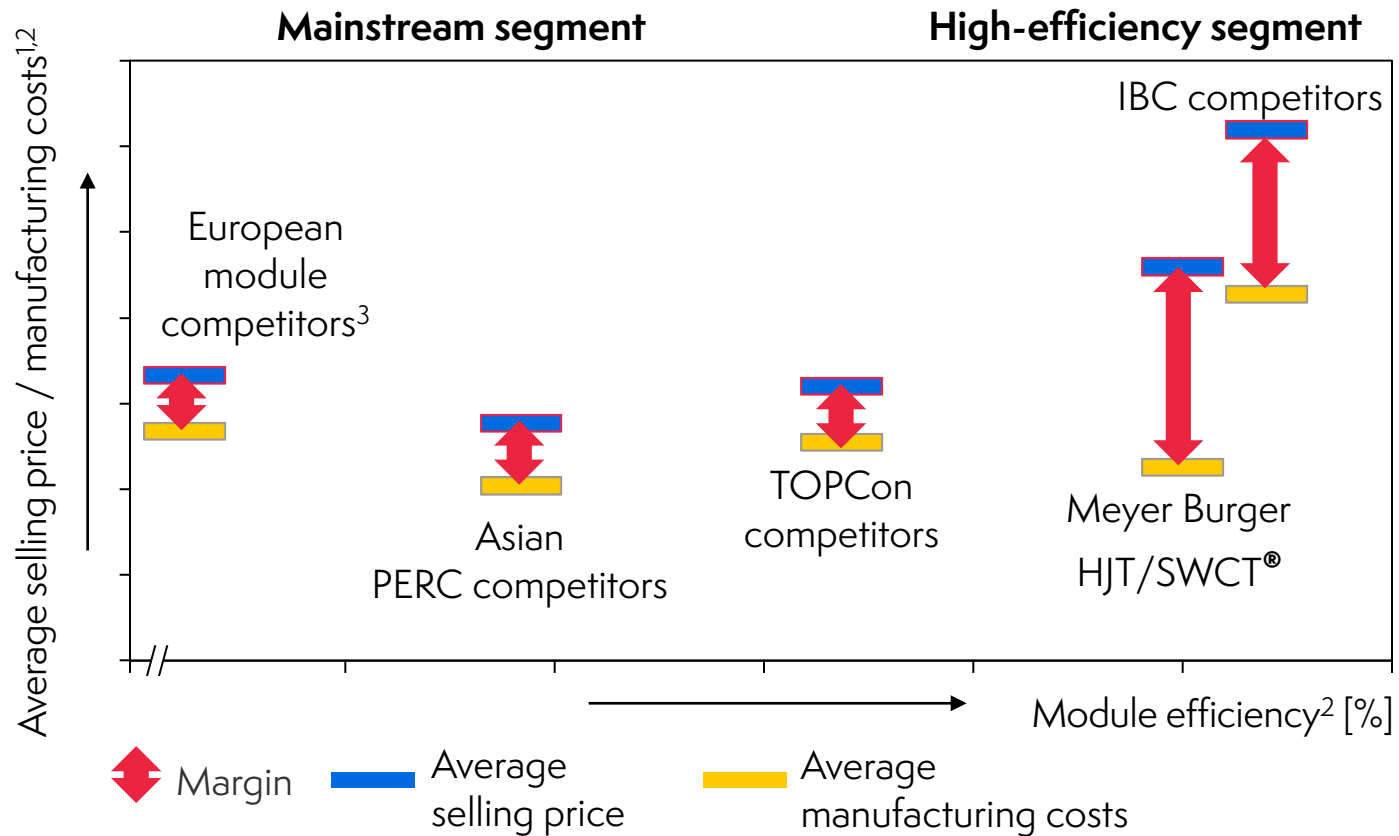
## Market positioning and key competitors



## PERC technology expected to continue to dominate mainstream market, but cost and performance potentials are largely exhausted

- Vast majority of new production capacities announced by Tier-1 manufacturers are still based on mainstream PERC technology.<sup>1</sup> TOPCon is used to present flagship products, which we see as having limited relevance in volume market
- Manufacturers currently focus on introducing larger wafer formats and building larger modules, which is not an inherent technology advantage for PERC
- As of today, TOPCon is not suited to substitute PERC as a mass production technology due to complexity and low yields. Also, upgrade of existing PERC lines to TOPCon appears not yet to be economically sensible
- According to public announcements,<sup>1</sup> vast majority of Tier-1 manufacturers' expansion plans is PERC-based

# Meyer Burger can obtain a favorable market positioning, protect high margins



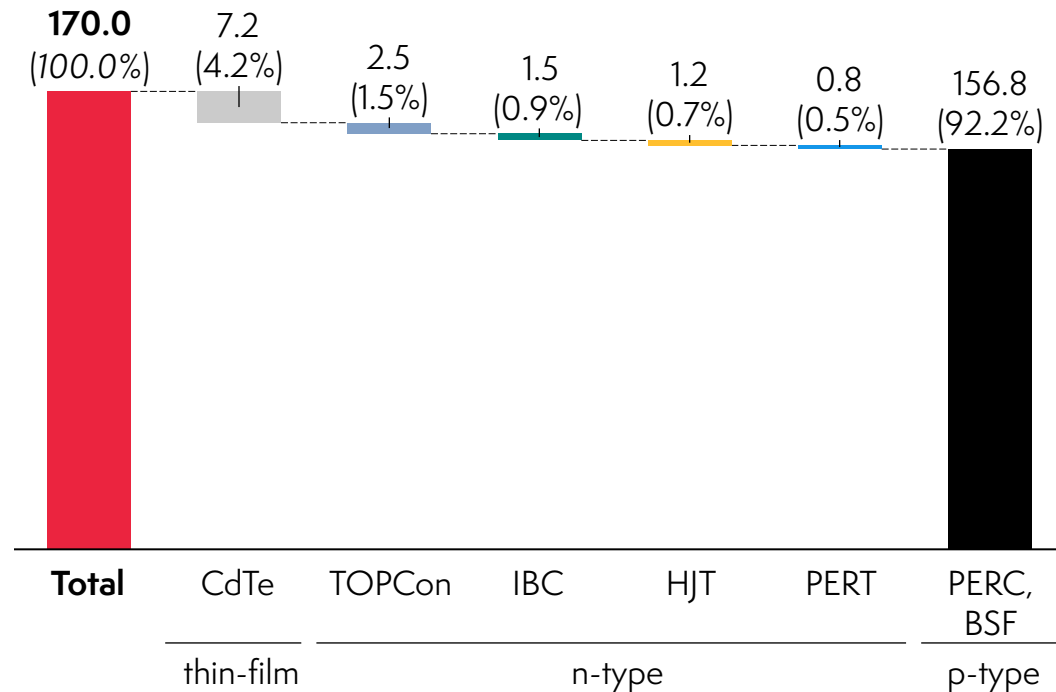
- The captive business model prevents competitors' access to HJT/SWCT<sup>®</sup>, so that Meyer Burger can maintain margins long-term
- Panasonic as leading HJT manufacturer has announced in Feb 2021 to exit own manufacturing by 2022
- PERC: low-margin commodity business with exhausted cost reduction potential
- High-efficiency competition: very high prices due to positioning as a premium product in the residential market – but with significantly higher production costs

Source: Company datasheets, Solarmedia, PVInfoLink, analyst reports, expert interviews; 1) Average sales price: reference prices from publicly available sources for "black-black" modules; production costs: COGS, incl. D&A; 2) average of several manufacturers for different categories; 3) module production with purchased Asian cells of medium performance class 4) [Panasonic to exit solar manufacturing – pv magazine International \(pv-magazine.com\)](https://www.pv-magazine.com/2021/02/04/panasonic-to-exit-solar-manufacturing/)

# n-type technologies expected to account for less than 5% of global final installed solar modules in 2021E



Global installed PV cell manufacturing capacity 2021E by technology [GW]



***“The fanfare from the major Chinese players in 2019 has largely evaporated now, in terms of the multi-GW of TOPCon and HJT lines being planned for 2020 and 2021. Their focus now is almost solely on 182/210mm wafer changes on a p-mono PERC template.”***

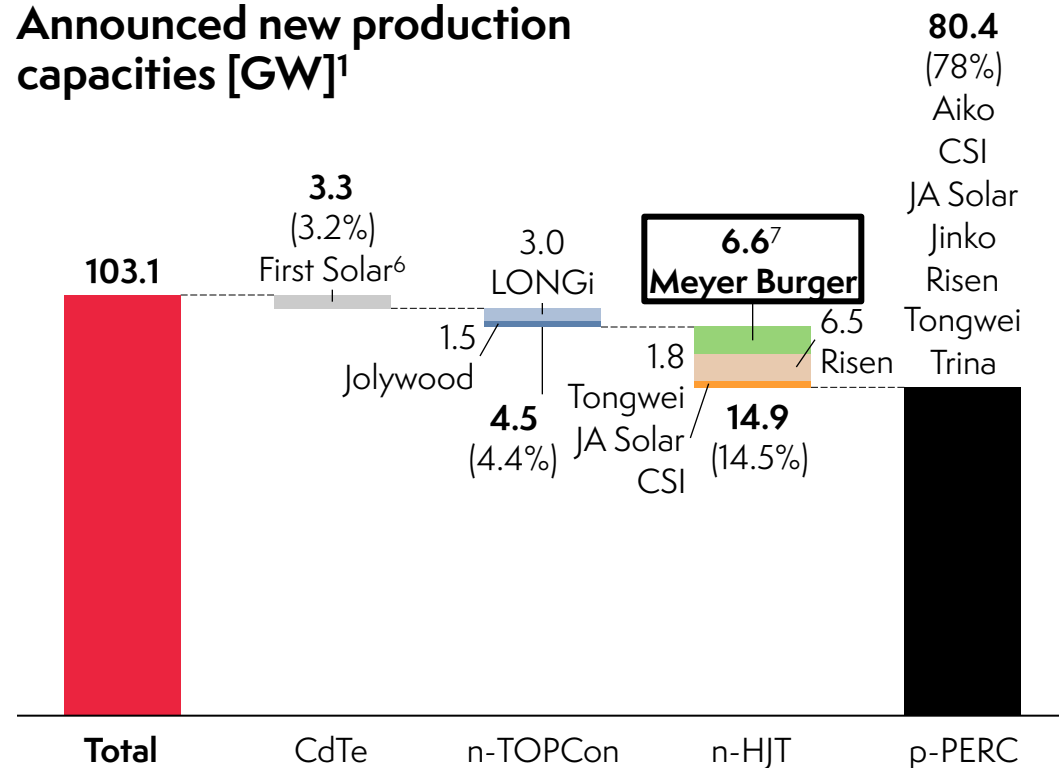
***“During 2021, p-mono PERC is totally dominant, more so than p-multi was in its peak 5-10 years ago.”***

Sources: Solar Media Market PVTech Research February 2021, Solar Media Market PVTech Research May 2021, Apricum – the Cleantech Advisory 2021, Meyer Burger market research May 2021, AsiaChem May 2021

Solar Media Market Research, Feb and May 2021

# Due to technological breakthrough, Meyer Burger has a well-founded n-type expansion strategy

Announced new production capacities [GW]<sup>1</sup>



Those who have achieved the technological-commercial breakthrough can grow

- Despite a number of announcements for investments in new n-type technologies, tier-1 manufacturers in fact focus their capacity expansions on PERC<sup>2,3</sup>
- In particular, HJT announcements from China have so far consistently not been implemented as announced (e.g., announcement Risen 2019 2.5 GW,<sup>4</sup> which was to be ready in 2021, is now postponed to 2023, announcements from new entrants usually “breathtaking”, but only a fraction implemented so far (e.g., SCIE 2019 – 10 GW<sup>5</sup>)
- **Meyer Burger emerging as a player with solid and technologically validated advanced technology expansion strategy**

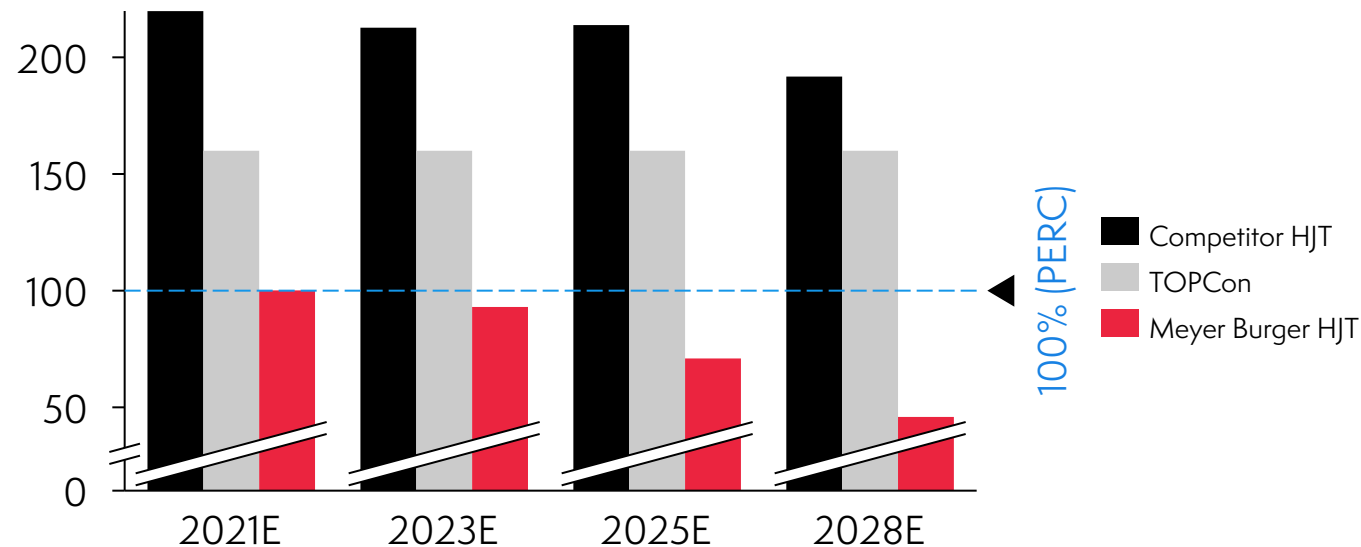
1) Limited to SMSL players and Jolywood (largest TOPCon player). Announcements by lower-tier players and new entrants without track record are not considered. 2) Solar Media Market Research February/May 2021. 3) AsiaChem Report May 2021. 4) [China's Risen Energy begins construction of 2.5-GW HJT module factory \(renewablesnow.com\)](#). 5) [Shanxi Coal to Build 10 Gigawatt Solar Cell Factory \(yicai.com\)](#).

6) [First Solar to Invest \\$680m in Expanding American Solar Manufacturing Capacity by 3.3 GW \(firstsolar.com\)](#). 7) Until 2027 according to current planning

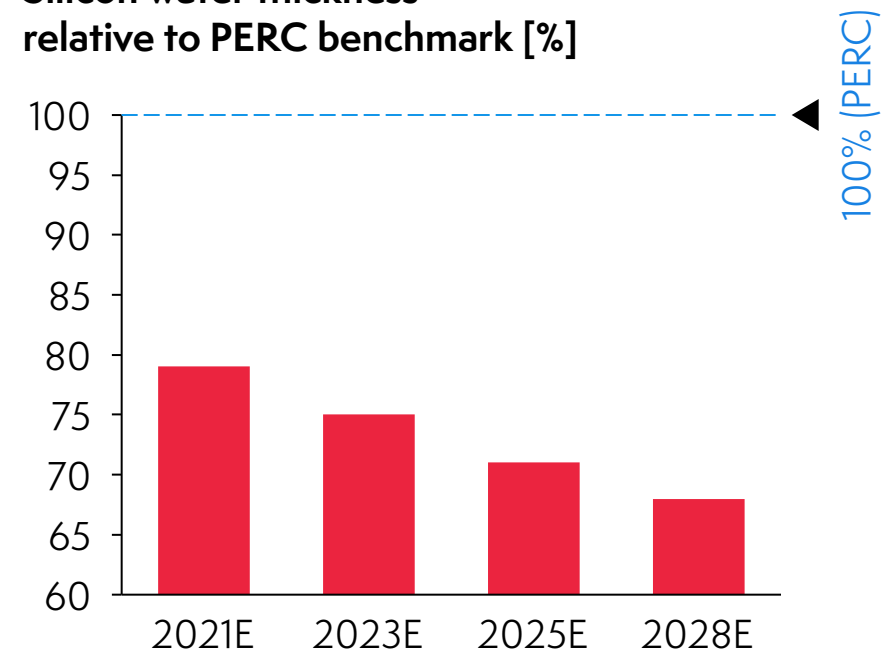
# Meyer Burger's technology provides not only performance advantage, but also sustainable cost advantage

Meyer Burger's HJT/SmartWire expected to mitigate the silver and silicon cost dependency of solar technologies

Amount of silver<sup>1</sup> per cell relative to PERC benchmark [%]



Silicon wafer thickness<sup>1</sup> relative to PERC benchmark [%]

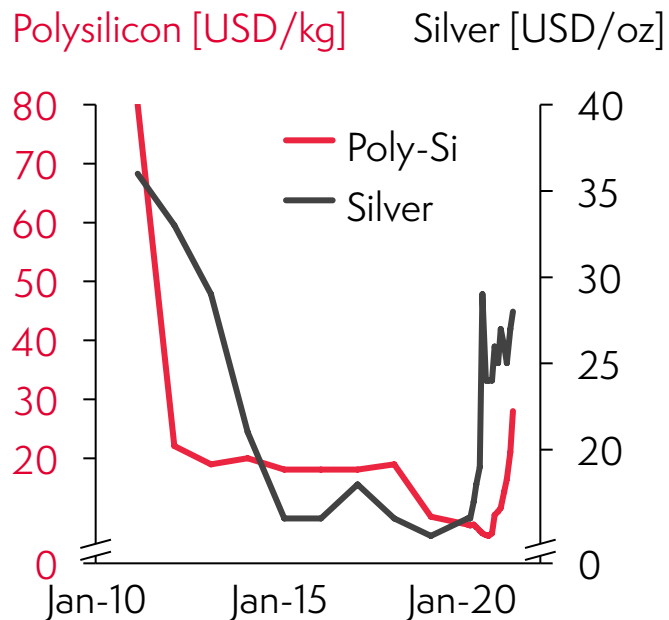


1) Source: ITRPV (VDMA April 2021) for "Competitor HJT", TOPCon and PERC references; Meyer Burger projections

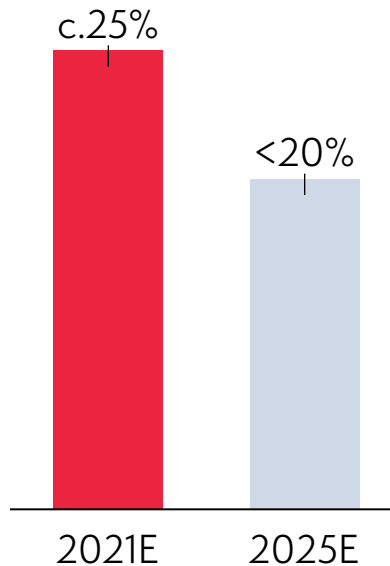


# Meyer Burger's COGS increasingly less influenced by volatile prices for silicon and silver, safeguarding our margin

## Long-term polysilicon and silicon wafer price trend<sup>1</sup>



## Meyer Burger polysilicon & silver share of COGS<sup>2</sup>

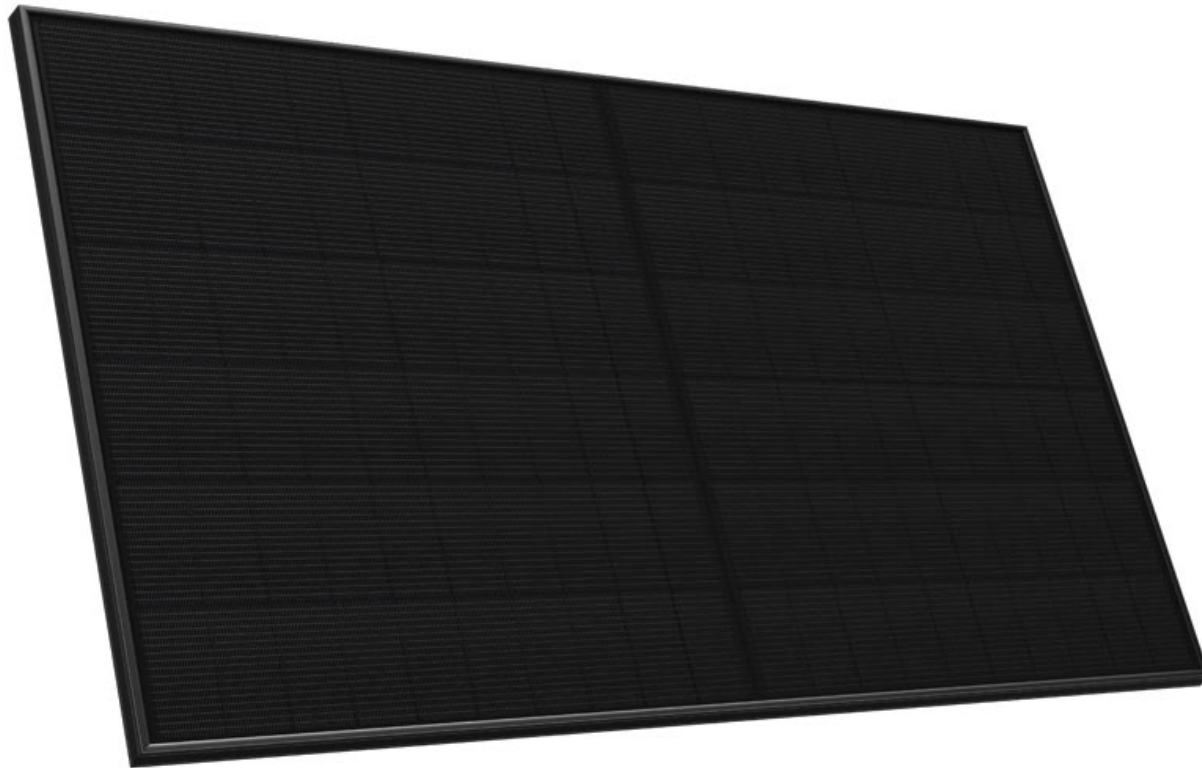


## Using the right technology, silver and silicon cost can be minimized and reduced

- Manufacturing costs heavily depend on volatile input costs from silicon and silver
- Meyer Burger expects its HJT/SmartWire technology to substitute and/or minimize silicon and silver usage, by thinning wafers and optimizing our SmartWire technology
- Due to these technological advantages, Meyer Burger expects a faster reduction of materials usage than the competition, so we can absorb volatile input costs easier than our competitors

1) Source: Bernreuter Research, silverprice.org. 2) Source: Meyer Burger projections

# Rooftop product with strong unique selling proposition



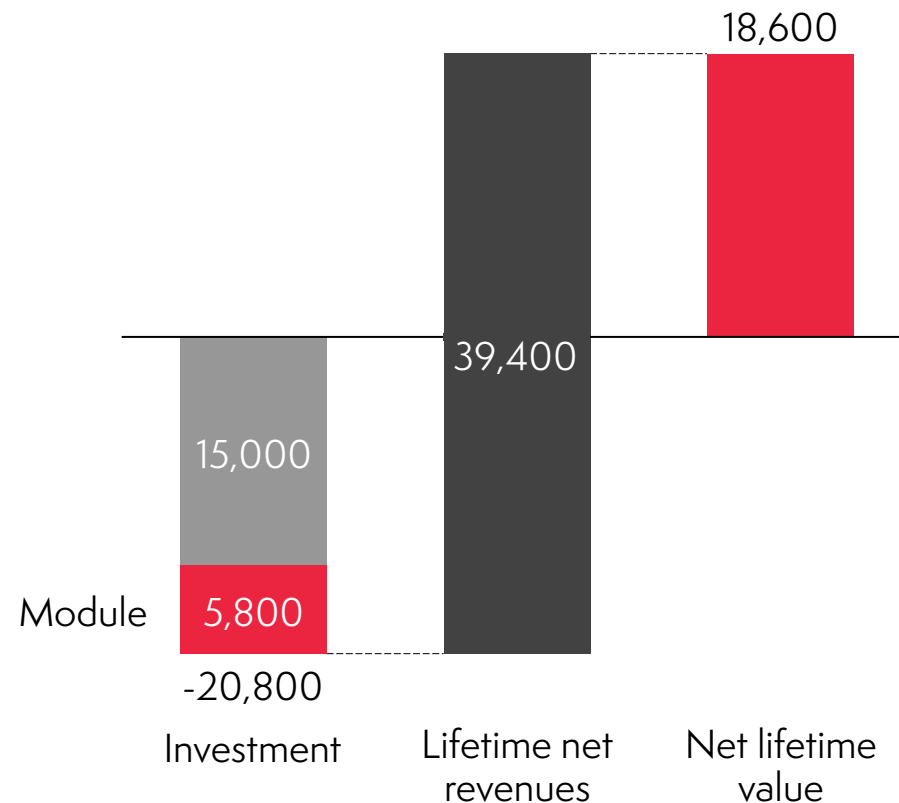
## Strong arguments to sell Meyer Burger module:

-  **High performance:** Higher efficiency<sup>1</sup> (up to 21.8%), more energy per area<sup>1</sup> (up to +20%)
-  **High quality:** Low degradation and long lifetime (>92% warranty after 25 years)
-  **Appealing aesthetics:** Almost uniform black appearance
-  **"Made in Germany":** Cells and modules produced in Germany
-  **Swiss innovation:** Proprietary next-generation PV technology platform
-  **Relatable corporate "story":** Strong media presence and credibility
-  **Sustainability:** High social, environmental standards. Module free of toxic lead

1) Compared to currently offered PERC modules

# Investment case for residential PV is generally highly attractive, with module cost only small part of system cost

Investment case – residential, Germany [EUR]

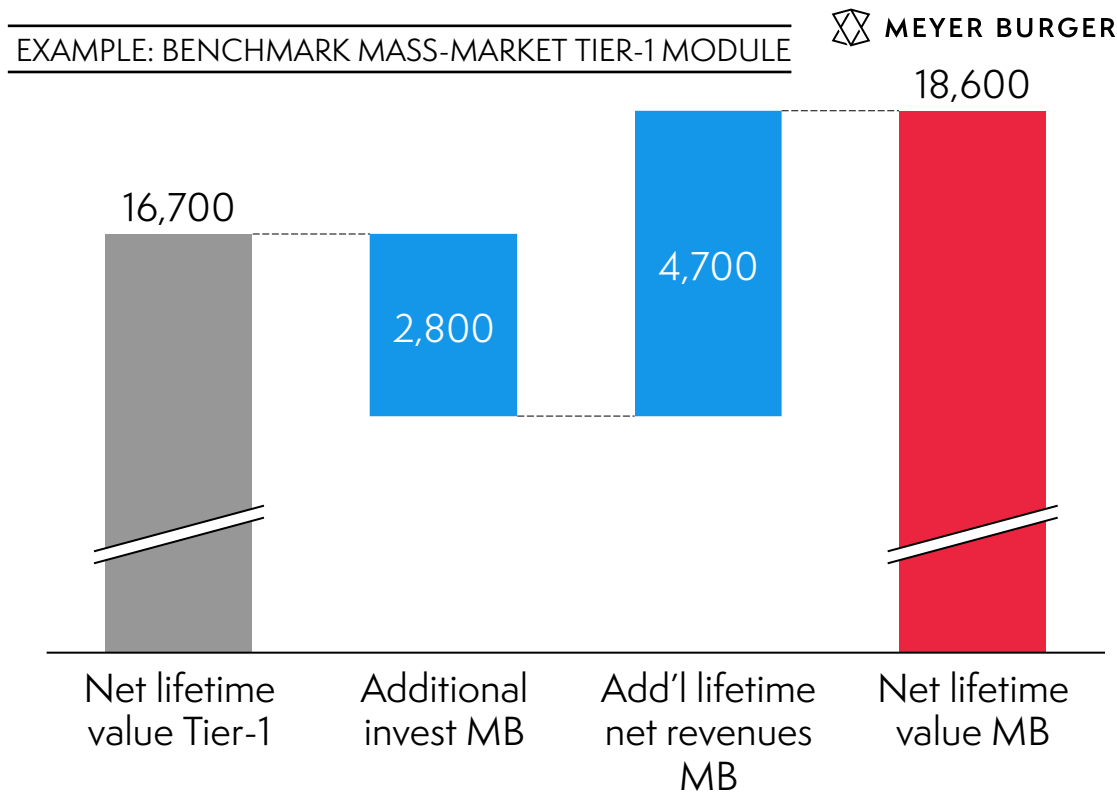


- Solar energy is typically the **most inexpensive way to generate electricity** for households. Investment case is highly attractive
- In Germany, the cost of each kWh produced (LCOE) is on the order of **9–10 EUR cents**, which can substitute a kWh procured from the **utility** for around **30 EUR cents**
- Energy demand is growing, with **electric mobility** and **electrification of heating** adding new demands
- Therefore, **optimization of self-consumption** is key for each solar system: adding a **battery** and maximizing solar system output drives self-consumption
- **Meyer Burger** optimizes system output, with **high energy output per area** among the best in the market

Source: Meyer Burger modeling, market data 06/2021. System parameters: 42 m<sup>2</sup> rooftop area, 25 years system life, 7,000 kWh annual consumption, 6 kWh battery, German site, electricity price 0.30 EUR/kWh, no cost of finance (undiscounted present values), considered module is Meyer Burger Black 390, system size 8.9 kW.

# Meyer Burger makes economically more attractive offering than mass-market competition, despite higher sales price

Net lifetime value [EUR]



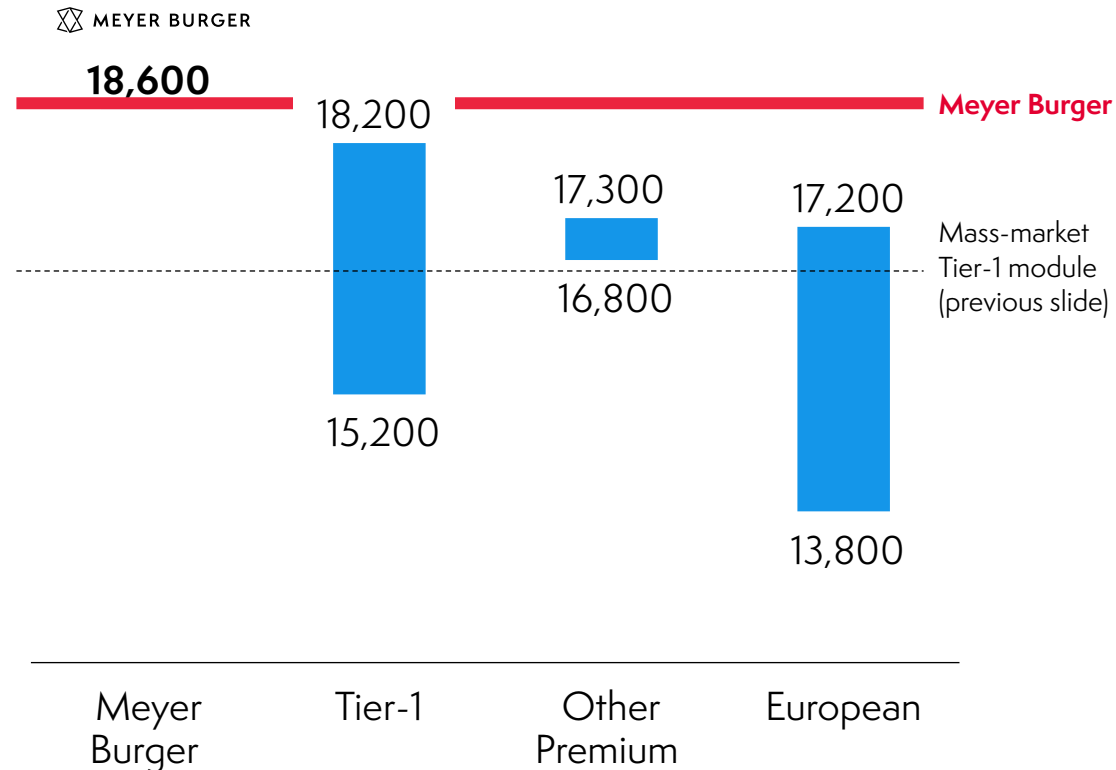
**Module price only small part of investment, but performance matters – Meyer Burger offers better net lifetime value**

- Due to high efficiency, Meyer Burger **fits more system power into restricted rooftop areas**, maximizing energy harvest and self-consumption potential
- Due to high energy yield and low degradation, Meyer Burger additionally **harvests more kWh** out of each kW installed
- In aggregate, net lifetime value of Meyer Burger system **exceeds standard Tier-1 offerings** significantly, despite slightly higher investment

Source: Meyer Burger modeling, market data 06/2021. System parameters: 42 m<sup>2</sup> rooftop area, 25 years system life, 7,000 kWh annual consumption, 6 kWh battery, German site, electricity price 0.30 EUR/kWh, no cost of finance (undiscounted present values), considered module is Meyer Burger Black 390, system size 8.9 kW (Meyer Burger), benchmark of "mass-market tier-1 module" is derived from a basket of current high-volume tier-1 modules: Q-Cells DUO G9+ black 335, LONGi LR4-60 HIB black 355, JA Solar JAM 60S21 Black 365

# Meyer Burger is compelling economic choice compared to competitors, plus offering additional benefits

## Net lifetime value ranges of competitors [EUR]



## Meyer Burger modules optimize net lifetime value for residential customers

- End customers have **attractive economic offering with Meyer Burger** – net lifetime value of system beats most other offerings
- On top of attractive economic proposition, Meyer Burger delivers high quality and aesthetics, a product “made in Germany” and made to ambitious sustainability standards
- Competitors are effectively charging a price premium for a product advantage (“premium product”, “made in Europe”) that Meyer Burger also delivers, typically in an economically more attractive package

Source: Meyer Burger modeling, market data 06/2021. System parameters: 42 m<sup>2</sup> rooftop area, 25 years system life, 7,000 kWh annual consumption, 6 kWh battery, German site, electricity price 0.30 EUR/kWh, no cost of finance (undiscounted present values), considered module is Meyer Burger Black 390, system size 8.9 kW (Meyer Burger). Tier-1 modules include: Q-Cells DUO G9+ black 335, Trina Vertex S TSM-385 DE09.05 Black, Jinko Tiger N 60 TR Black 355, LONGi LR4-60 HIB black 355, JA Solar JAM 60S21 Black 365, Winaico WST-M6 Mono Full Black 325. “Other Premium”: SunPower Maxeon 3 375, LG NeON 2 LG355N1K-N5, LG NeON H LG375N1K-E6 Black. European: Heckert NEMO 2.0 60M Black 325, Aleo X83 Premium 330, Energetica E.Classic M HC Black 365, Axitec AXIblackpremium X HC AC-330MH/120S. Benchmark of “mass-market tier-1 module” is derived from a basket of standard tier-1 mass-market modules: Q-Cells DUO G9+ black 335, LONGi LR4-60 HIB black 355, JA Solar JAM 60S21 Black 365

# Large partnership network with leading distributors already established

Distributor	AT	BE	FR	DE	IT	LU	NL	NOR <sup>1</sup>	PL	PT	CH	US
Alaska			•									
BayWa r.e.	•	•		•	•	•	•	•	•			•
Densys PV5				•								
Enerklima					•							
GPC Europe		•				•	•					
FF Solar E.R.										•		
IBC Solar	•	•		•	•	•	•	•	•		•	
Johannes Kraft				•								
Kdi Solar			•									
Krannich Solar	•	•	•	•	•		•	•	•		•	•
Memodo	•			•	•		•		•		•	
Rehl Energy				•			•					
SEN				•								
Solarmarkt											•	
Solen Energy									•			
Solexis											•	
Sonepar				•								
Wagner	•	•	•	•		•	•	•				

*“Our sales team is calling for a premium product of European origin” – German distributor*

- Market entry in 2021 in residential and small commercial segment of core European and U.S. markets
- Sales through a three-stage approach– Meyer Burger is primarily selling in bulk quantities to distributors, who then deliver entire systems to installers. Distributors keep inventory in their warehouses and continuously place orders under framework agreement to refill their stock
- Strategic portfolio of ~50 strong distributors to cover target markets expected
- Orders are being placed at prices confirming our expectations (per business plan)
- First large C&I and utility pilot projects under evaluation to prepare utility market entry

1) Nordic countries

# The next-generation heterojunction technology in the works according to our communicated R&D roadmap



## Development on track:

- Full-size 60 cell module prototypes using next-generation heterojunction cells (interdigitated back contact) built in May 2021 at Meyer Burger Switzerland
- Proof-of-concept (small-aperture SmartWire module) of 24.7% module efficiency (externally confirmed in Feb 2021 by ISFH Hamelin, Germany)
- In-house development of equipment for next-generation cells and modules on track based on HJT technology platform
- Ultra-high efficiency, continued cost-down resulting in competitive production costs
- Bifacial version possible for use in utility projects
- **Commercial module efficiency of  $\geq 24\%$  expected in mass manufacturing**

# Financial outlook

## Targets 2023

- **Expected revenue:**<sup>1</sup> > CHF 550m (EUR 500m)
- **Expected gross profit margin:** > 40%
- **Expected EBITDA margin:** > 25%
- **Expected net debt / EBITDA:** < 1.5x

## Long-term goals (2027)

- **Expected revenue:** > CHF 2.0bn (EUR 1.8bn)
- **Expected EBITDA margin:** > 30%
- **Expected net debt / EBITDA:** net cash

## Assumptions

- To realize the stated targets/goals (7 GW capacity by 2027E), in addition to the EUR 185m debt financing, another EUR 260m (CHF 286m) in financing is required
- CAPEX (for equal cell and module capacity, in aggregate):
  - Initial phase for completion of 1.4 GW capacity:  
c. EUR 195m (CHF 214m)/GW
  - Following phases: EUR 160–175m (CHF 176–192m)/GW

Note: Figures relate to Meyer Burger Group consolidated financials. 1) Shipped product mix in 2023 planned to include up to 30% of utility modules



