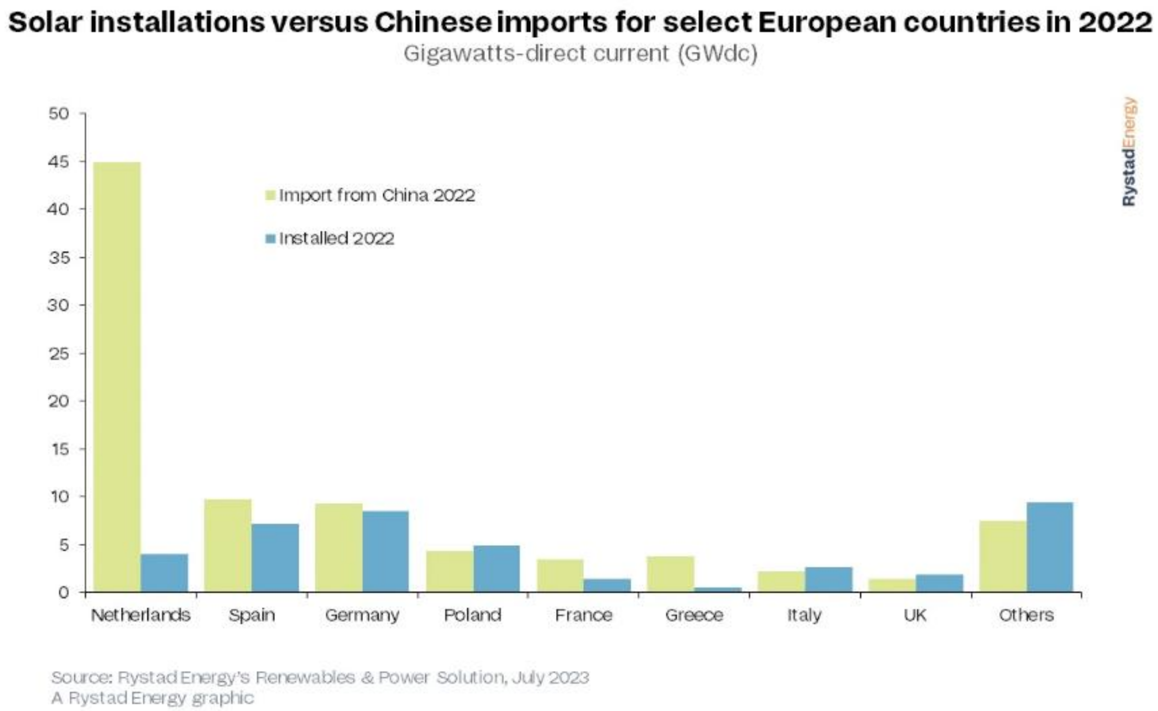
EUROPEAN SOLAR MANUFACTURING COUNCIL

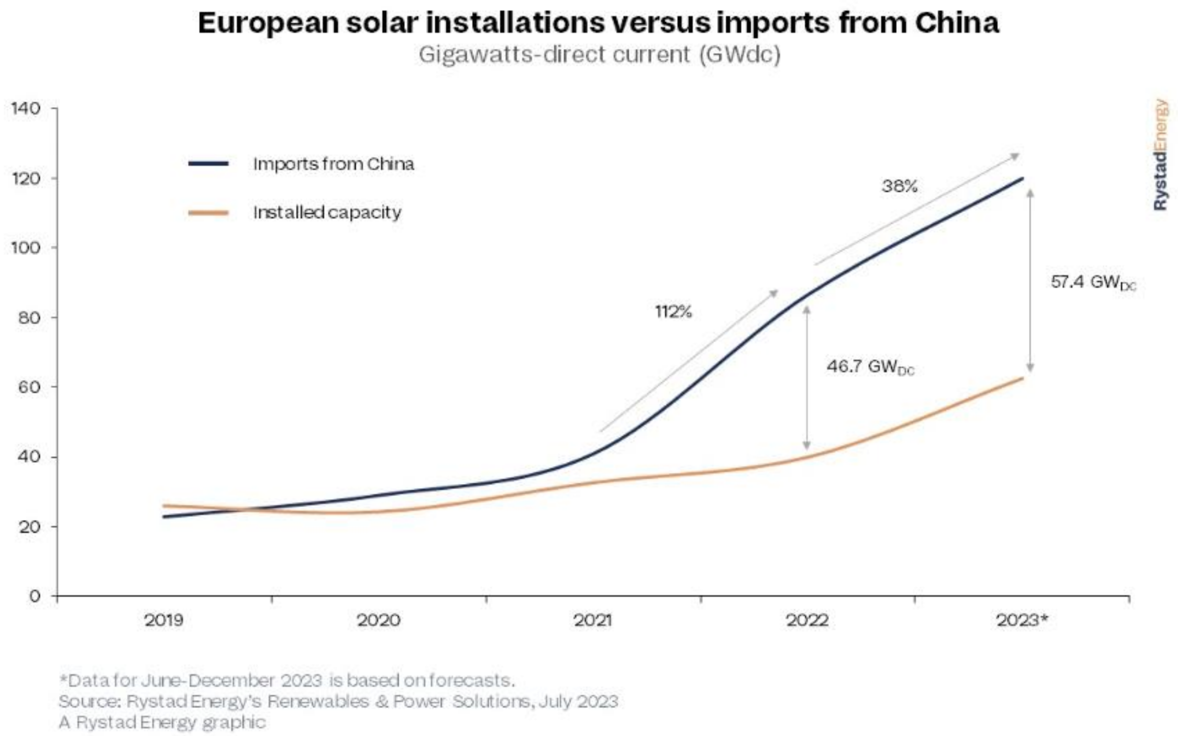
UNSUSTAINABLY ULTRA-LOW PV MODULES PRICES

FACTS, FIGURES & PROPOSALS TO SAFEGUARD EUROPEAN PV MANUFACTURING

29 August 2023

EU DEPENDENCY ON PV MODULES IMPORT INCREASES – CHINESE IMPORT FORECASTED TO INCREASE 38% ANNUALLY





- Europe's spending on solar imports has almost quadrupled in the last five years, surging from €5.5 billion in 2018 to more than €20 billion last year, while the supply source has become increasingly concentrated. An overwhelming €18.5 billion, equal to 91% of all PV import expenditure, was spent on Chinese products.
- Judging by the market in 2023 to date, RystadEnergy expects Chinese imports to increase by 38% annually and reach 120 GWdc. While installations will gain momentum – jump 57% versus last year to hit about 63 GWdc – the gap will widen in absolute terms, with a difference of 57.4 GWdc at year end.

EUROPEAN PV MODULES MANUFACTURING IN NUMBERS

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- European installed PV manufacturing capacities (modules): **9 GW**
- Production in 2022: **8 GW**
- Production in 2023: **1,5 GW** (Q1 and Q2)
- Unsold stocks in August 2023: **300 – 400 MW**
- In 2023 (Q1 and Q2) only **35% of production capacities has been utilized** (1,5 GW out of 4,5 GW (1/2 of 9 GW)
- Almost **30% of produced modules (300 – 400 MW) are impossible to sell in current pricing conditions**
- By the end of the year **the gap might increase to 700 MW – 1000 MW (50-75 %)**
- **Current Chinese oversupply to Europe will reach at least 100 – 120 GW in 2023**, resulting 2 years of EU installation capacities totally covered by the cheap import
- European PV modules producers already suspended production due to inability to sell the modules in the EU market, but the expensive raw materials already secured at the beginning of 2023

CHINESE PV MODULES PRICES ARE NOT CHANGING DESPITE POLYSILICON, WAFERS AND CELLS PRICE INCREASE

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Spot Prices & Sentiment Outlook

Sentiment outlook based on industry players' market sentiments.

Polysilicon	High	Low	Average	Change	% Change	Next week	Next Month	In 3 months
GPM (USD/kg)	36.00	25.00	30.000	0	0	-	-	-
China Mono Grade (CNY/kg)	76.00	60.00	69.29	+0.65	+0.95	▲	▲	▼
Wafers (USD/pc)	**High**	**Low**	**Average**	**Change**	**% Change**	**Next week**	**Next Month**	**In 3 months**
Mono G1	0.679	0.640	0.666	0	0	-	-	-
Mono M6	0.330	0.300	0.313	0	0	-	-	-
Mono M10	0.368	0.347	0.364	+0.004	+1.11	-	-	▼
Mono G12	0.490	0.470	0.489	+0.006	+1.24	-	-	▼
Cells (USD/wp)	**High**	**Low**	**Average**	**Change**	**% Change**	**Next week**	**Next Month**	**In 3 months**
Multi	0.1095	0.0722	0.0801	0	0	-	-	-
Mono PERC G1	0.1130	0.1065	0.1119	0	0	-	-	-
Mono PERC M6	0.1040	0.0940	0.1032	0	0	-	-	-
Mono PERC M10	0.0953	0.0922	0.0942	+0.0003	+0.32	-	-	▼
Mono PERC G12	0.1055	0.0882	0.0930	0	0	-	-	▼
TOPCon M10	0.1004	0.0993	0.0998	0	0	-	-	▼
Modules	**High**	**Low**	**Average**	**Change**	**% Change**	**Next week**	**Next Month**	**In 3 months**
Mono PERC (USD/wp)	0.170	0.150	0.163	0	0	-	-	▼
Mono PERC (CNY/wp)	1.300	1.230	1.266	0	0	-	-	▼
TOPCon (USD/wp)	0.190	0.161	0.170	0	0	-	-	▼
TOPCon (CNY/wp)	1.493	1.300	1.380	0	0	-	-	▼

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GPM (USD/kg)	36.00	25.00	30.000	0	0	-	-	-
China Mono Grade (CNY/kg)	77.00	60.00	71.90	+2.61	+3.77	▲	▲	▼
Wafers (USD/pc)	**High**	**Low**	**Average**	**Change**	**% Change**	**Next week**	**Next Month**	**In 3 months**
Mono M6	0.330	0.300	0.313	0	0	-	-	-
Mono M10	0.393	0.368	0.377	+0.013	+3.57	-	-	▼
Mono G12	0.523	0.490	0.507	+0.018	+3.68	-	-	▼
Cells (USD/wp)	**High**	**Low**	**Average**	**Change**	**% Change**	**Next week**	**Next Month**	**In 3 months**
Mono PERC M6	0.1040	0.0940	0.1032	0	0	-	-	-
Mono PERC M10	0.0953	0.0922	0.0942	0	0	-	-	▼
Mono PERC G12	0.1055	0.0882	0.0930	0	0	-	-	▼
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EUROPEAN PRODUCERS OWNS 50% PRODUCTION IN STOCK DUE TO UNSUSTAINABLE ULTRA-LOW PRICES OF IMPORTED PV MODULES FROM CHINA

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European PV modules manufacturers	Production capacities of PV modules, January-June 2023, MW	PV modules in stock, MW	Stock in comparison to production, %	Losses, EUR million
1	800	50	6,25	NA
2	50	6	12	NA
3	54	8	15	NA
4	59	10	17	NA
5	200	70	35	8
6	100	40	40	6
7	100	50	50	NA
8	300	100	33,3	NA
TOTAL	**1663**	**334** (average 41,8)	**26,1**	**7**

IMMEDIATE ACTIONS ARE CRITICAL

No.	Action	Expected effect	Pre-conditions
1.	Activate EU procurements scheme to buy out 300 – 500 MW European PV modules	Stabilized European PV manufacturing capacities for one year (2023)	• € 60 million financing • Elaborate TCTF framework in the Member States • Elaborate Ukraine Facility in the EU
2.	Activate trade defence measures: for example, forced-labour legislation to stop forced labour produced PV modules flows to the EU	Stabilized European PV manufacturing capacities for two-three years (2023-2025)	• Adopt strong legislative proposals with immediate effect
3.	Include 40% market share capacities for European produced PV modules into NZIA	Stabilized European PV manufacturing capacities and secured new manufacturing capacities in 2024–2030	• Adapted NZIA respectively
4.	Include Bonus-point resilience system in the Public procurements and Auctions of NZIA	Stabilized European PV manufacturing capacities and secured new manufacturing capacities in 2024–2030	• Adapted NZIA respectively

SHORT-TERM LEVERAGE: BUY OUT INSTRUMENT FOR THE EUROPEAN STOCKS OF PV MODULES

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- 1 GW supported buy out of European PV modules production capacities would be 1/60 of all expected installations in 2023, but would put an important signal for the investors towards 40% European domestic manufacturing goal
- Expected buy out capacity: **300 – 500 MW**
- Price difference: 1 Wp of imported PV modules – **€ 0.15**, European produced – **€ 0.35**
- 1 kW difference – **€ 200 ;** 1 MW – **€ 200 000;** 5 MW – **€ 1 million**
- 500 MW – **€ 100 million;** 300 MW – **€ 60 million**
- **€ 60 million should be treated as a temporary** fast-track delivery measure for 50 – 300 projects accross the EU or one support package to support Ukraine:
  - ❑ **potentially to be elaborated using** [Temporary Crisis and Transition Framework]**(TCTF) (9 March 2023) section** *2.5.1. Investment aid for accelerating the rollout of renewable energy and for energy storage* (a competitive bidding process is not mandatory for projects with installed capacity equal or below 1 MW or projects with an installed capacity equal or below 6 MW, if they are 100 % owned by SMEs or renewable energy communities)
  - ❑ **or supporting Ukraine will additional decentralized PV generation through proposed** Regulation of the European Parliament and the Council on establishing the Ukraine Facility **(20 June 2023)**

MIDDLE-TERM LEVERAGE: 40% MARKET RESERVED TO EUROPEAN PV PRODUCERS IN NET-ZERO INDUSTRY ACT (NZIA)

- Segment the European PV market to ensure progressively 40% of local content through the entire value chain
- Which segments? Focus on market segments where non-pricing measures can be easily set-up while keeping other market segments free
    - Focus on:
        - Distributed segments where cost-competitiveness is less important
        - Utility-scale if cost-competitiveness is granted
        - Public procurements and auctions
    - Leave the C-PPA and Merchant PV segments free
- How to segment the market?
    - Use primarily mandatory non-pricing measures (see below) to constraint a part of the market and apply them to specific market segments
    - Use quarterly data to propose tenders to fill the gap with annual local content requirements non fulfilled thanks to mandatory measures
    - Propose high remuneration in such tenders for European PV components

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THANK YOU FOR YOUR ATTENTION!