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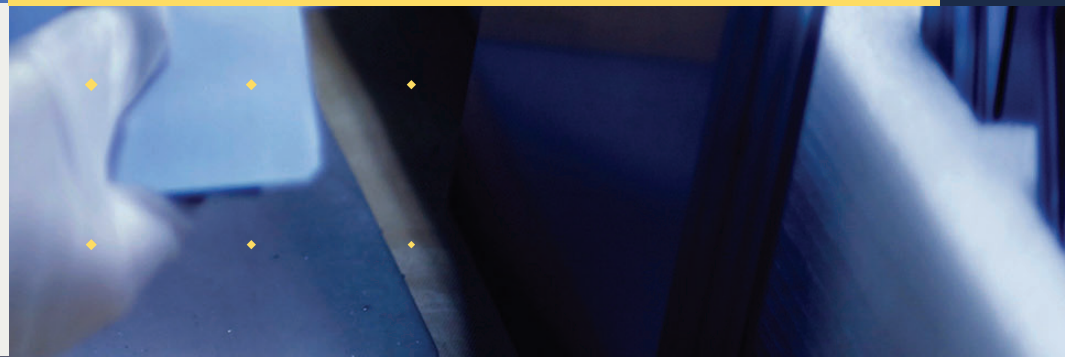
Reaching the Solar TW-level by 2030

Input for Agora Energiewende from SolarPower Europe

March 2022



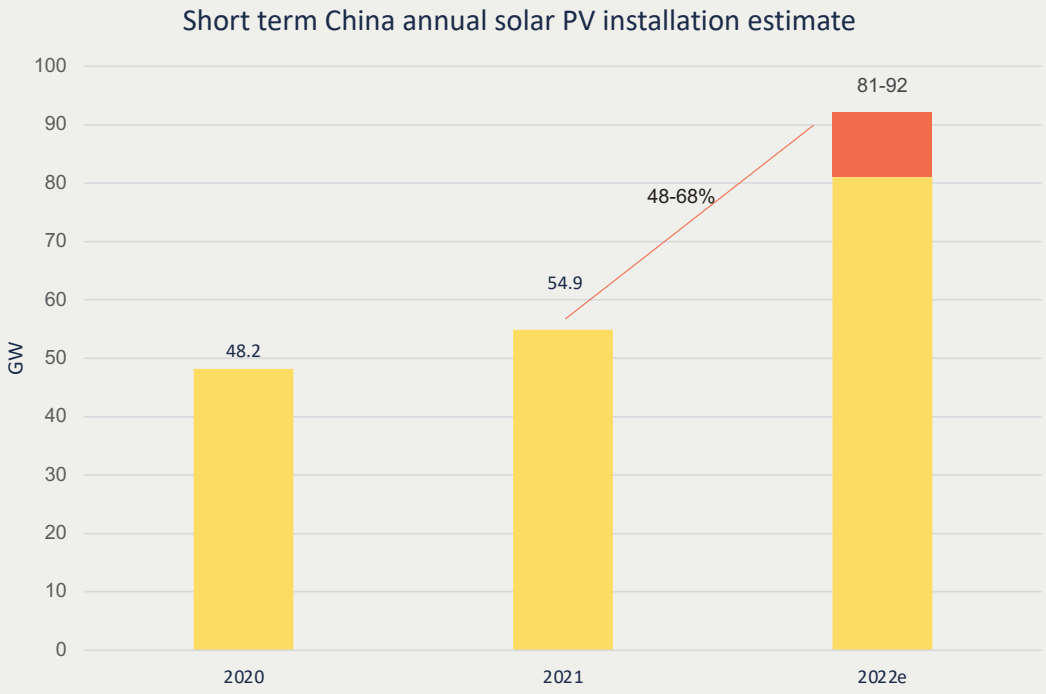
Rapid PV installation growth is possible – Example China

Solar market demand depends on price, regulatory environment - and primarily on political ambition. As an example, the world's largest PV market, China installed a new global annual record of 54 GW in 2021. Due to solar's competitiveness PV demand is expected to grow to 81-92 GW in 2022, according to BloombergNEF, while the Chinese PV Industry Association expects up to 90 GW this year.

China dominates the entire value chain with production capacities from silicon to modules, balance of system, process materials and production equipment, enabling very flexible adaptation to demand.

For the European Union, that means:

1. if you remove barriers, mostly permitting, rapid growth is possible
2. establish own manufacturing value chain to become truly energy independent



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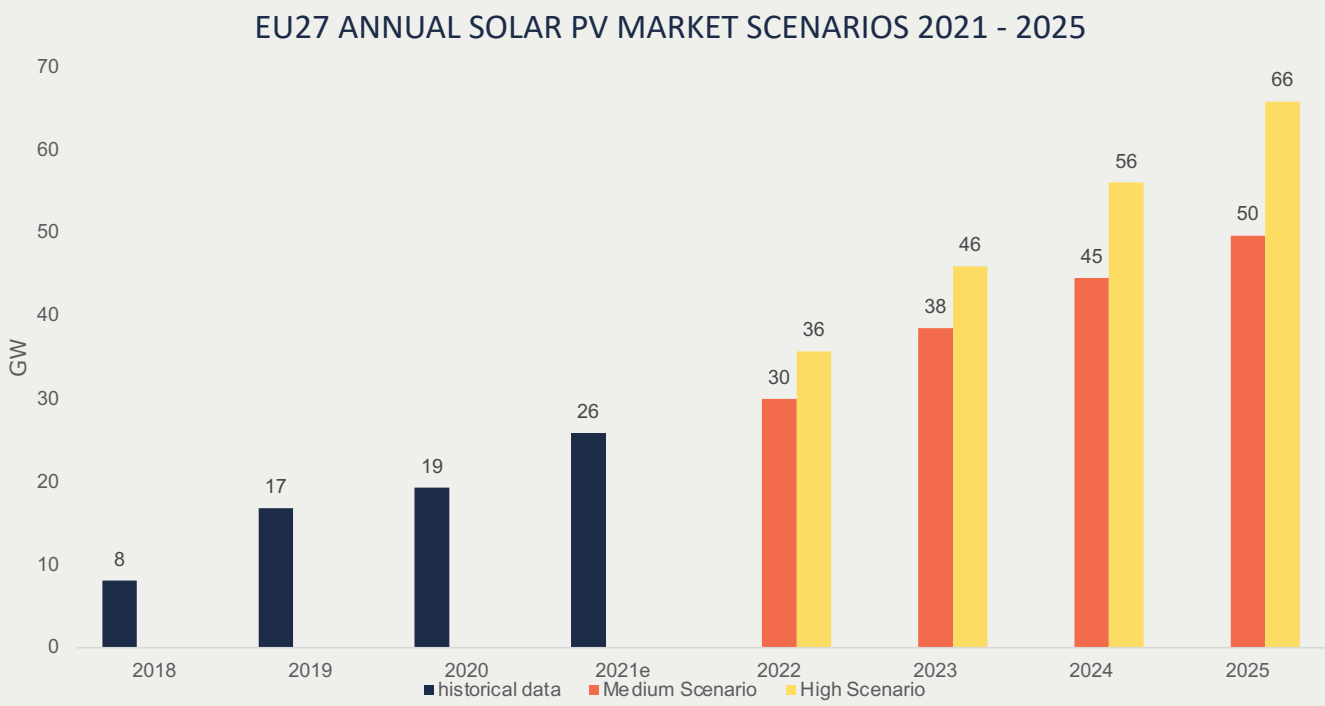
4-Year Annual PV Market Outlook: SolarPower Europe High Scenario anticipates 66 GW of new solar PV in 2025

According to SolarPower Europe's EU Market Outlook 2021-2025, published in Dec. 2021, the High Scenario, anticipating strong policy support due to Climate Change considerations is expected to grow from around 26 GW in 2021 to about 36 GW this year – and up to 66 GW in 2025, compared to a business-as-usual Medium Scenario, resulting in around 30 GW this year and about 50 GW in 2025.



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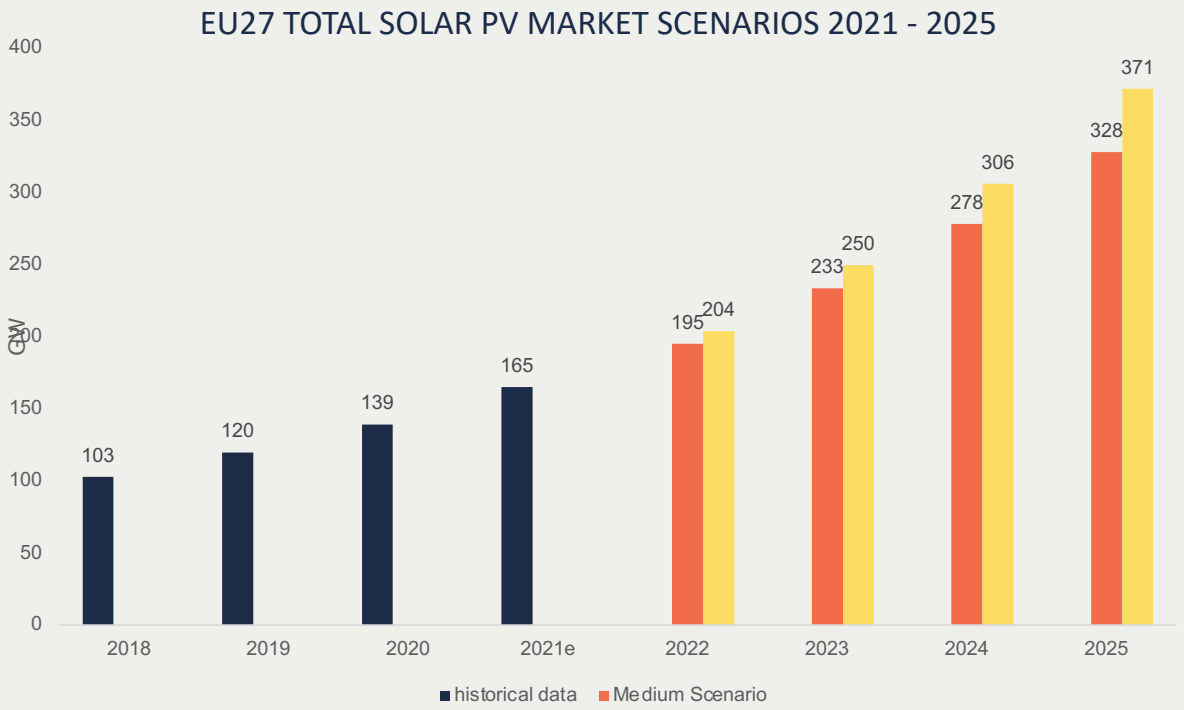
4-Year Total PV Market Outlook: Cumulative capacity could reach 371 GW by 2025 in our high scenario

According to SolarPower Europe's EU Market Outlook 2021-2025, published in Dec. 2021, in the Medium Scenario, the EU' total solar generation fleet would nearly double from 165 GW end of 2021 to 328 GW in 2025. In the High Scenario, solar capacity would be at 371 GW 12% higher by end of 2025 than in the Medium Scenario.



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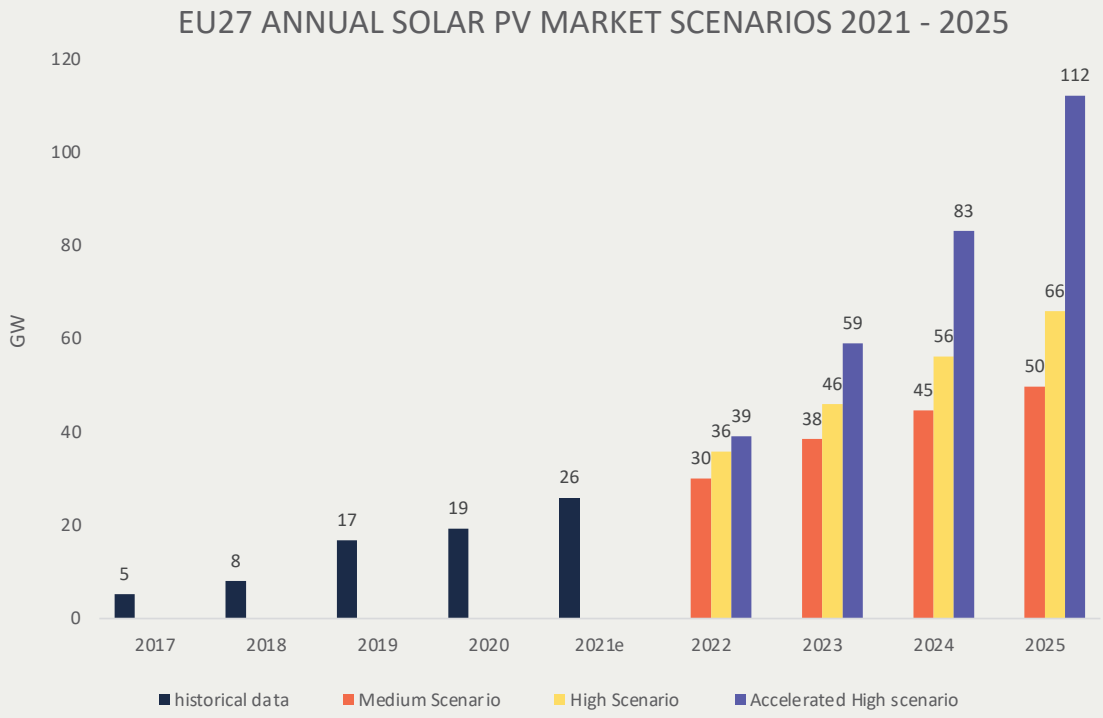
Improved conditions could push EU market to 100 GW in annual installations within 3 years

When taking into consideration the geopolitical component on top of climate change – and implementing push and pull measures immediately, a 100 GW+ market size in 2025 is possible, according to our Accelerated High Scenario.

- As global demand for PV is higher than supply – and modules largely allocated for this year, time-wise it is probably too short to achieve a strong increase in market size above our current High Scenario of 36 GW in 2022. Additional rooftop systems could drive the market up to 39 GW.
- With much new silicon capacity announced to come online in China by end of year, the EU market is expected to be able to speed up installations if push and pull measures are implemented immediately.
- Such measures need to fix permitting issues, put into effect new support schemes and legal requirements, such as mandatory solar on all new buildings in EU, financing for local manufacturing. If implemented in 2022, this will result in much stronger deployment as of 2024 and grow annual market to 100 GW level by 2025.



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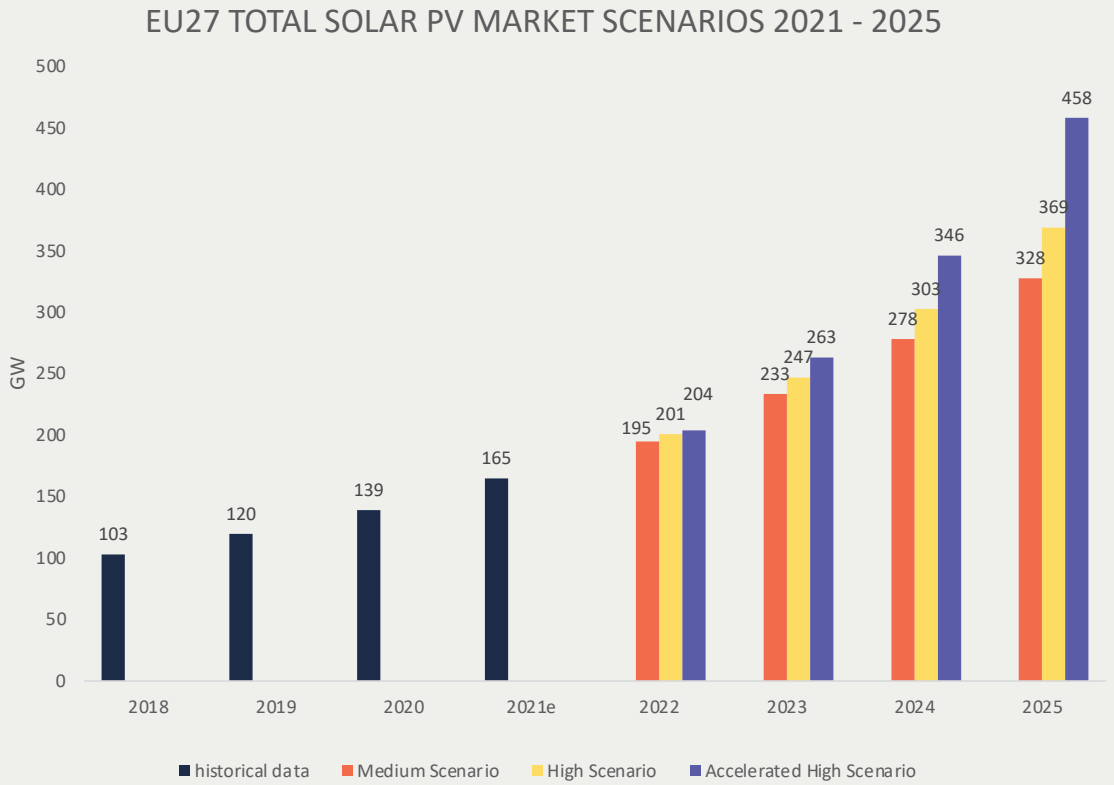
Accelerated High Scenario could push the total fleet to over 400 GW by end of 2025

The Accelerated High Scenario estimates the EU-27 solar power generation fleet to grow to 458 GW by end of 2025, 39% higher than the 328 GW in the Medium Scenario of our pre-war Dec. 2021 published EU Market Outlook, and 293 GW more than today. 458 GW of solar could produce over 500 TWh in 2026.



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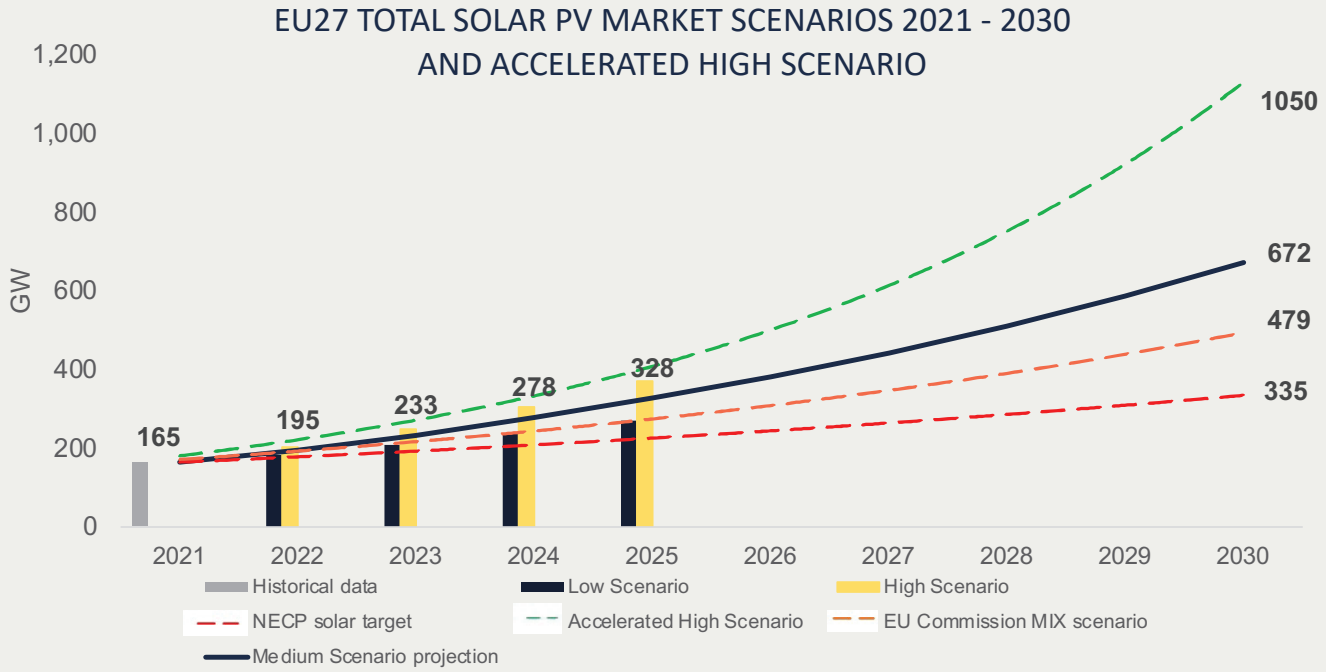
Reaching the Solar TW Level in 2030

While solar demand in the EU by 2030 is expected to double to 672 GW in a business-as-usual scenario, both the member states and the European Commission anticipate much lower levels – EC Mix Scenario: 479 GW; Member states NECPs: 335 GW. An Accelerated High Scenario would enable the EU to reach the TW level (1050 GW) by 2030, over 3x NECPs, over 2x EC assumptions, and over 1.5x business-as-usual.



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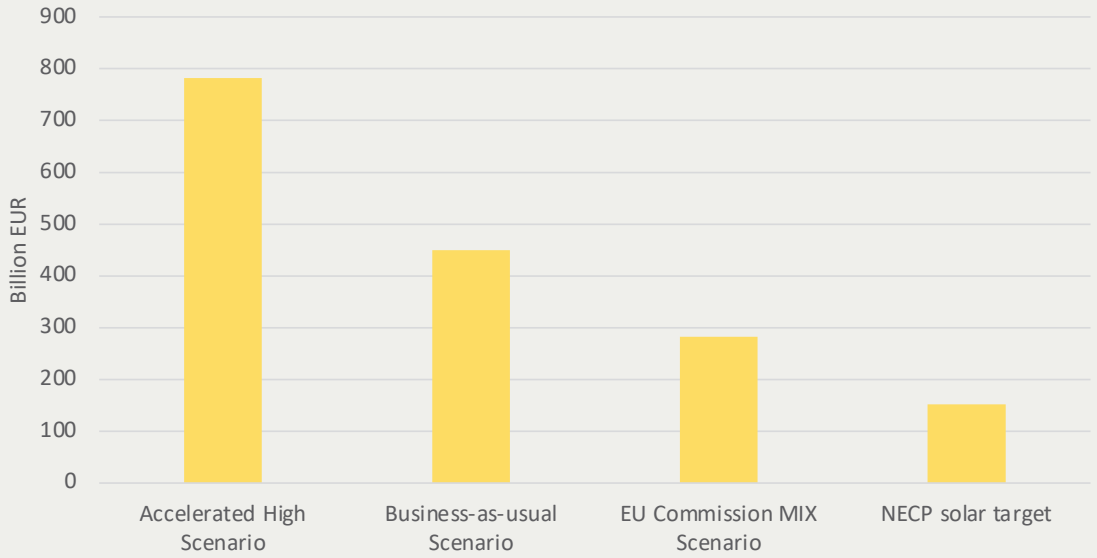
Accelerated High Scenario implies higher investment costs than BAU scenario

Raising the European Union's total solar power capacity by 2030 to the TW-level, as modelled in our Accelerated High Scenario, would result in 782 billion Euros of investment costs, that's 74% higher than in the business-as-usual scenario, which would be anyway insufficient to comply with the 1.5° C Paris target.

Solar PV investment costs 2022-2030 under different scenarios



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Policy asks

The key to faster development of solar power is **permitting** for any type of application, which needs to be flanked by several measures to enable massive uptick of solar installations in the short run:

1. **Multiply Rooftop PV development**
   - Ban on new gas and oil boilers immediately, as shown successfully in Denmark
   - Mandate solar PV, storage & heat pumps on any new buildings
   - Leverage € 20 bn of investments for rooftop PV through Energy Efficiency Europe Fund with emphasis on emerging EU solar markets

2. **Facilitate utility-scale development**
   - Mandate all member states to identify suitable areas for solar PV development aiming at fast-tracked development of solar PV by end of 2022 to enable 2025 and 2030 targets
   - Freeze of grid connection fees for the years 2022-2024

3. **Pave the way for smart solar and hybrid projects**
   - Dedicate CEF-E funding and RRF funding for a hybrid auction programme in 2022
   - Launch a Task Force in the EU for hybrid projects (solar, wind & storage) access to flexibility markets in the EU Commission

4. **Accelerate the deployment of an EU manufacturing capacity**
   - € 1 bn de-risking funding using InvestEU and Innovation Fund (similar to the Chips Act) to re-establish full silicon solar manufacturing chain in EU for sustainable energy security

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