# Europe faces new sabotage fears as hidden devices found in Chinese solar inverters



Concerns regarding hidden components in Chinese-made solar power equipment have surged in Europe, as experts warn of potential vulnerabilities in the continent’s electrical grids. The revelation of undeclared remote access devices embedded in solar inverters—crucial components linking solar farms to power grids—has alarmed officials following a recent blackout that impacted millions in the Iberian Peninsula. This incident starkly illustrated how integrated energy systems could be jeopardised, especially given the prevalence of Chinese technology across European solar installations.

Reports indicate that during routine inspections, unauthorized communication devices were discovered within American solar inverters, suggesting they may have been purposefully concealed. Such devices not only raise the spectre of foreign manipulation but also pose operational risks, as they can bypass existing cybersecurity measures. The discovery has prompted U.S. energy authorities to probe whether these vulnerabilities could lead to destabilisation and large-scale outages. While the Chinese embassy has rejected suggestions of malicious intent, the incident has intensified fears about China’s dominant position in the global inverter market—78% of inverters installed in Europe in 2023 originated from Chinese firms, particularly Huawei and SunGrow.

This dominance is attributed to China's vast manufacturing capabilities and competitive pricing. However, as noted by the European Solar Manufacturing Council, this reliance puts Europe’s energy sovereignty at peril. In most cases, the remote capabilities of these Chinese-manufactured inverters could enable foreign entities to disconnect power generation, manipulating grid stability through voltage and frequency adjustments or overriding crucial safety systems.

The implications were vividly highlighted during the Iberian blackout, a crisis triggered by a sudden loss of 2.2 gigawatts (GW) of power generation. Experts emphasize that a loss of 3 GW could have profound cascading effects across Europe, underscoring the fragility of its energy infrastructure. As Europe grapples with transitioning away from Russian energy sources following the Ukraine invasion, the need for enhanced energy sovereignty has never been clearer.

In light of these revelations, some nations are taking proactive measures. For instance, Lithuania recently enacted legislation requiring that all photovoltaic projects above 100 kilowatts use inverters that adhere to national safety standards, effectively banning Chinese devices from its power grid. Moreover, Estonia's intelligence chief voiced similar concerns, warning that reliance on Chinese technology could lead to potential coercion.

Simultaneously, broader discussions are occurring at the European Union level. A directive known as NIS2 aims to bolster cybersecurity across critical infrastructure sectors, yet many smaller solar initiatives remain vulnerable due to the directive’s primary focus on large-scale projects. With solar power contributing a substantial portion—up to 15%—of Europe’s electricity supply, the urgency for concrete action is heightened.

Recent data from energy think tank Ember revealed that 68 terawatt hours of solar electricity were generated in the first quarter of 2025, a substantial increase compared to the previous year. Such growing reliance on solar energy substantiates calls for protective measures against undue foreign influence.

The private sector is also feeling the strain of these geopolitical tensions. As European manufacturers like Germany's Solarwatt shift operations to China due to economic pressures, a growing unease about the sustainability of local solar production emerges. The asymmetry in trade practices, particularly concerning Chinese subsidies, has prompted the EU to conduct investigations to ensure fair competition within green technology industries.

As global attention turns to energy security amid climate goals, the path forward is fraught with challenges. With increasing scrutiny of foreign technology in essential services, it is clear that balancing economic needs with national security will be paramount as Europe forges its renewable future.

## Reference Map:

* Paragraph 1 – [[1]](https://www.defensenews.com/global/europe/2025/05/29/chinese-hold-on-solar-power-tech-raises-fresh-sabotage-fears-in-europe/), [[2]](https://www.reuters.com/sustainability/climate-energy/ghost-machine-rogue-communication-devices-found-chinese-inverters-2025-05-14/)
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## Bibliography

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2. <https://www.reuters.com/sustainability/climate-energy/ghost-machine-rogue-communication-devices-found-chinese-inverters-2025-05-14/> - U.S. energy officials are investigating security threats posed by Chinese-manufactured solar power inverters and batteries after discovering rogue, undocumented communication devices in some units. These inverters are crucial for integrating solar panels, wind turbines, and batteries into electricity grids. Experts fear these components could bypass firewalls, allowing remote manipulation, potentially destabilizing power grids and causing large-scale blackouts. While the Chinese embassy denies malicious intent, U.S. lawmakers and analysts warn of the growing risk of cyber threats from China, especially as Chinese companies dominate the global inverter market. ([reuters.com](https://www.reuters.com/sustainability/climate-energy/ghost-machine-rogue-communication-devices-found-chinese-inverters-2025-05-14/?utm_source=openai))
3. <https://www.ft.com/content/534eef36-d9ad-4a03-afa1-f87ab03a9b18> - MI5 is investigating the national security implications of Chinese technology in the UK's energy system, focusing on green technologies such as solar panels and industrial batteries. Concerns revolve around China's dominance in global supply chains crucial to decarbonisation and potential risks including data sharing with the Chinese government and control over strategic assets. The review is part of the UK's broader audit of its relations with China, set to report later this year. The discussion has extended to the Green Volt offshore wind project, where there is debate over the involvement of Chinese company Mingyang. MPs and experts worry about Chinese interference in critical infrastructure, sparking a debate on balancing pragmatic economic relationships with national security. The government has previously intervened to limit Chinese involvement in certain sectors, underscoring an inconsistent approach to Chinese participation in sensitive industries. The need to decarbonise Britain's power sector by 2030 presents a challenge, given the reliance on Chinese supply chains for renewables. ([ft.com](https://www.ft.com/content/534eef36-d9ad-4a03-afa1-f87ab03a9b18?utm_source=openai))
4. <https://apnews.com/article/7795793693138377537e0253821c8a9a> - China has condemned the European Union's investigation into Chinese subsidies for green industries, labeling the move as protectionist and unfair. The EU launched the investigation to determine if Chinese subsidies for wind turbine companies provide an undue advantage in competing for projects in Spain, Greece, France, Romania, and Bulgaria. China argues that this action undermines fair competition and global climate change efforts. Margrethe Vestager, EU Commissioner for Competition, emphasized the need for systemic solutions to prevent similar issues in other industries. Additionally, the EU is investigating Chinese solar panel makers and previously probed electric vehicle subsidies. Critics, including China's Commerce Ministry and business groups, claim these measures discourage Chinese investment in Europe and reflect economic coercion. The outcome of these investigations may impact the EU's and global green energy goals. ([apnews.com](https://apnews.com/article/7795793693138377537e0253821c8a9a?utm_source=openai))
5. <https://www.ft.com/content/9c53f696-6e32-4349-bd18-f4d431e2a577> - Germany's Solarwatt, founded in the 1990s and symbolic of Europe's renewable energy ambitions, is halting production in Dresden and shifting to China due to economic constraints. A global oversupply has reduced solar panel prices over 60% since July 2022, making European manufacturers unprofitable and challenging US and Chinese companies. Despite job cuts and project delays, cheaper panels have spurred consumer and business installations. The International Energy Agency predicts solar power will surpass wind and nuclear by 2028. The crisis highlights the delicate balance governments face in decarbonizing economies affordably while creating jobs. EU and US policies, including the Inflation Reduction Act, aim to bolster domestic industries but face challenges from Chinese dominance. The situation underscores a need for coordinated trade and climate policies to foster a resilient solar industry. ([ft.com](https://www.ft.com/content/9c53f696-6e32-4349-bd18-f4d431e2a577?utm_source=openai))
6. <https://www.reuters.com/business/energy/europes-electrolyzer-firms-fear-chinas-rapid-expansion-2024-09-18/> - European electrolyzer firms are expressing concern over China's rapid expansion in the clean hydrogen sector, urging that the EU's Green Deal prioritize 'Made in Europe'. A letter to European Commission President Ursula von der Leyen highlights that less than half of EU hydrogen projects intend to use European technology, suggesting this number could drop further by the time agreements are finalized. China aims to produce 200,000 tons of clean hydrogen annually by 2025, with projections indicating significant growth in its hydrogen consumption and production capacity. The EU has allocated 4 billion euros for hydrogen projects, but Europe's global manufacturing capacity remains overshadowed by China, which now holds 40% of the market. European firms fear repeating the fate of the solar photovoltaic industry, which suffered due to Chinese state support, resulting in cheaper imports and local manufacturing losses. The letter calls for resilience criteria through the European Hydrogen Bank and measures to support local manufacturing in upcoming EHB rounds. The EU is considering mechanisms to protect its producers, with upcoming auctions potentially incorporating stricter requirements and transparency on electrolyzer origins and foreign subsidies. ([reuters.com](https://www.reuters.com/business/energy/europes-electrolyzer-firms-fear-chinas-rapid-expansion-2024-09-18/?utm_source=openai))
7. <https://www.pv-magazine.com/2024/11/18/lithuania-bans-remote-chinese-access-to-solar-wind-storage-devices/> - Lithuania has decided to tighten its cybersecurity laws, banning manufacturers from countries deemed national security threats, including China, from remotely accessing management systems of solar, wind, and storage facilities. The European Solar Manufacturing Council has backed the move. The legislation prohibits Chinese manufacturers from accessing systems they supply in Lithuania, preventing them from remotely managing power parameters or turning devices on or off. The law applies to information management systems and security measures in solar and wind power plants and energy storage devices with installed capacities exceeding 100 kW. It will take effect for new projects on May 1, 2025, while existing facilities must comply by May 1, 2026. ([pv-magazine.com](https://www.pv-magazine.com/2024/11/18/lithuania-bans-remote-chinese-access-to-solar-wind-storage-devices/?utm_source=openai))