Policy Brief
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Beyond Cable Protection: Taiwan's Undersea Infrastructure Resilience in the Age of AI

Yi-Chieh Chen

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Taiwan has adopted a comprehensive approach to strengthening the resilience of its undersea infrastructure through legal reforms, enhanced surveillance and backup communication capabilities, and calls for international cooperation. In the meantime, Taipei seeks to increase its strategic importance within global digital networks by positioning itself as a hub for semiconductor production, AI development, and international communications connectivity. Despite these efforts, significant structural challenges remain. Resource constraints related to energy and water supply may limit the expansion of AI infrastructure and reduce Taiwan's attractiveness for future undersea cable investments, while dependence on international cable repair arrangements creates vulnerabilities during periods of disruption. This policy brief argues that addressing these challenges will be essential for strengthening Taiwan's long-term undersea infrastructure resilience and strategic position in the age of AI.

Introduction

The growing use of gray-zone tactics in Taiwan's surrounding waters has pushed Taipei to reform its legal and policy frameworks to protect undersea infrastructure and enhance communication resilience. Undersea communication cables are the backbone of global digital connectivity, including critical financial, commercial, and security communications. For Taiwan, an island at the heart of global supply chains and geopolitics, protecting these cables is not just an economic priority but also a matter of national security.

To strengthen undersea infrastructure resilience, Taiwan has increased penalties for damage to submarine cables, expanded enforcement and surveillance capacities, developed backup communication systems, and promoted international cooperation. At the same time, Taiwan seeks to reinforce its strategic significance within the global digital network by attracting digital service providers and undersea cable operators, thereby consolidating its position as an indispensable digital node in the western Pacific. Nevertheless, Taiwan still faces major challenges in enhancing undersea infrastructure resilience due to its geographic, diplomatic, and geopolitical constraints.

This policy brief examines Taiwan's policy landscape for undersea infrastructure resilience and

argues that while Taiwan's cable-protection policy is comprehensive, it remains constrained by resource, geopolitical, and repair challenges. It accordingly offers policy recommendations.

Taiwan's Policy Landscape on Undersea Infrastructure Resilience

Taiwan's efforts to enhance resilience against potential submarine cable disruptions continue to advance through both domestic policy measures and diplomatic initiatives. Key strategies include legal reforms, investments in surveillance and communication technologies, diversification of cable networks, strengthening repair capacity, and expanding international cooperation. These initiatives provide a multilayered approach to protecting critical undersea infrastructure.

1. Legal and Regulatory Reforms

Since 2021, Taiwan has begun amending laws governing the protection of submarine cables. It started with changes to the environmentally oriented laws, such as the Law on the Exclusive Economic Zone and the Continental Shelf of the Republic of China, as well as the Sand and Gravel Excavation Act. These amendments successfully reduced illegal sand dredging around Taiwan's islands, which has been a major cause of submarine cable damage. In 2025, Taipei further reinforced its regulatory framework by amending seven laws to safeguard undersea cables and related infrastructure, including pipelines, cable landing stations, transmission and switching facilities, and connected systems.[1] These reforms also increase penalties to deter potential offenders and broaden the authorities' powers to identify potential offenses.

2. Undersea Cable: Network Expansion and Repair

Beyond legal reforms, Taiwan has continued to build backup communication capacities by constructing new undersea cables with international companies and by enhancing satellite autonomy to improve surveillance and communication capabilities. Meanwhile, Taiwan is proactively positioning itself as a leading hub for data centers and AI infrastructure to strengthen its strategic position in the digital world. Its strategies include constructing optical cable conduits and submarine cable landing stations to attract international submarine cable companies and enhance fiber-optic connectivity, with the goal of becoming a key undersea cable network hub in the western Pacific.[2] These efforts are expected to attract global cloud providers and data center operators to establish facilities in Taiwan.

Currently, Taiwan has 10 domestic and 15 international undersea cables, and it continues to expand its undersea cable network.[3] Chunghwa Telecom, the largest telecommunications service provider in Taiwan, has been actively collaborating with international companies to construct undersea cables to increase data capacity and resilience. In 2025, the internationally funded cables, Apricot and Southeast Asia-Japan Cable 2 (SJC2), were successfully activated.[4] In addition, Chunghwa Telecom is investing in AGU East and E2A, which are expected to be completed in 2028 and 2029, respectively.[5]

On the cable repair front, Taiwan lacks domestic repair capabilities, but Chunghwa Telecom has joined two international submarine cable repair regions, Yokohama Zone (YZ) and the Southeast Asia Indian Ocean Maintenance Agreement (SEAIOCMA),[6] to increase the efficiency and cost-effectiveness of repairing cables.

3. Diplomatic Efforts

At the diplomatic level, in 2025, Taiwan's Ministry of Foreign Affairs launched the RISK Management Initiative on International Undersea Cables to call for international cooperation in safeguarding undersea infrastructure.[7] This dip-

lomatic effort has gained traction beyond Taipei. In the same year, the Critical Undersea Infrastructure Resilience Initiative Act (S.2222), which supports Taiwan in protecting its undersea infrastructure, was introduced in the United States. The bill's introduction reflects growing recognition that the security of Taiwan's undersea cables is not merely a domestic concern but an international issue that requires coordinated international action, echoing Taipei's call for greater cooperation.

Structural Challenges

Despite substantial policy and diplomatic progress, Taiwan continues to face three major structural challenges in strengthening its undersea infrastructure resilience: resource constraints related to energy and water supplies, limited cable repair capacity, and geopolitical limitations affecting international cooperation.

1. Resource Constraints: Energy and Water

Water and energy scarcity may limit Taiwan's plans to expand the capacity of its AI infrastructure, data centers, and semiconductor manufacturing—sectors that underpin its ambition to be a central player in the global digital network. These sectors are not only vital for domestic growth but also for attracting undersea cable investments, as they signal Taiwan's digital relevance and reliability. Without demonstrable long-term resource reliability, Taiwan risks losing its ability to present itself as a reliable destination for future undersea cable investments. Digital service providers and international cable operators prioritize stable, resilient locations for their infrastructure; if Taiwan's resource constraints persist, companies may select alternative destinations for new cable landings or data hubs. As a result, securing reliable energy and water supplies is not only an economic imperative but also a prerequisite for Taiwan's broader strategy to enhance its strategic importance in the global undersea cable network.

Energy

Taiwan's Ministry of Economic Affairs has stated that the energy supply is expected to remain sufficient until 2034.[8] Nonetheless, future electricity consumption in the AI and semiconductor industries may be underestimated, especially since Taiwan's semiconductor manufacturing industry has increased its electricity consumption amid rising orders for high-end semiconductors supporting AI development. Simon Lin, Wistron chairman, and Chia-Wei Chao, Research Director at the Taiwan Climate Action Network, urge Taipei to reassess future electricity demand, noting that Wistron had to change its expansion plans due to the already-constrained power supply, while it is expected that Taiwan Semiconductor Manufacturing Company's (TSMC) electricity consumption will increase from 9 percent of Taiwan's total electricity consumption in 2024 to 15 percent by 2030.[9]

Additionally, electricity consumption in Taiwan is disproportionately higher in the north than in the south, while much of the island's electricity infrastructure and generation capacity are located in the south.[10] As a result, electricity must be transmitted over long distances to meet demand in northern regions, where research, design, and energy-intensive facilities such as data centers and semiconductor manufacturers are concentrated.[11] Balancing uneven regional development and maintaining electricity transmission during a crisis remain challenges, alongside concerns about underestimating future energy consumption.

Water

Apart from electricity, water is another key resource for semiconductor production and the development of AI infrastructure. The issue of water scarcity in Taiwan has raised concerns because of the rapid development of high-tech industries and ongoing climate change. In 2020, it was the first time in 56 years that no typhoon made landfall in Taiwan during the typhoon season. Due to the

lack of rainfall during the wet season, Taiwan experienced a severe drought in 2021. This drought did not affect Taiwan's semiconductor exports that year, but it did raise concerns.[12]

Taipei and its industries have continued to diversify their water sources and water recycling methods to increase the resilience of water supply systems for industry, agriculture, and domestic use by improving water distribution systems and conservation measures. These measures include constructing reclaimed-water plants,[13] reservoir interconnecting pipelines, and seawater desalination plants.[14]

However, ongoing climate change continues to put pressure on Taiwan's industries, especially water-intensive sectors such as semiconductor manufacturing. While total precipitation has not changed drastically, rainfall has become increasingly concentrated over short periods and more intense, making it difficult for Taiwan to capture and store water effectively.[15] In July 2025, Taiwan's Central Weather Administration (CWA) recorded the highest average monthly precipitation across Taiwan since 1951.[16] By contrast, the CWA recorded the lowest winter rainfall in 75 years on the west coast of Taiwan in March 2026.[17] These drastic changes in rainfall over such a short period threaten water sustainability.

2. Limited Cable Repair Capacity

Taiwan's Chunghwa Telecom participates in the Yokohama Zone (YZ) and the Southeast Asia Indian Ocean Maintenance Agreement (SEAIOCMA) to increase the efficiency and cost-effectiveness of cable repairs. However, membership does not guarantee timely repair services, as repair times depend on factors such as the number of cables currently in need of repair in the region, weather, permits to repair cables in affected areas, and the geopolitical situation.[18] Repair times can therefore range from days to months. According to Taiwan's Ministry of Digital Affairs' cable repair schedule for June 2026, repairs to damaged cables are expected to take one to two months.[19]

Moreover, growing tension between China and Taiwan casts uncertainty over the repair of submarine cables. It is reported that it took four months and 23 days to repair Taima No. 2 in 2023 due to the interference of Chinese patrol ships.[20] In addition, in March 2026, Jason Hsu, Taiwan's former legislator and current Senior Fellow at the Hudson Institute, testified before the U.S.-China Economic and Security Review Commission (USCC) on the strategic importance of undersea cables in deterring China.[21] He pointed out that it would be "effectively impossible" to repair Taiwan's undersea cables during active hostilities with China.

The complex nature of undersea cable repair and the potential for hostilities from China underscore Taiwan's need to build its own undersea cable repair capacity.

3. Geopolitical Constraints

Taiwan's Ministry of Foreign Affairs has proactively promoted its RISK initiative, calling for greater international cooperation to safeguard undersea cables. Even though the initiative has been supported by several European parliamentarians across 18 countries,[22] many countries would find it challenging to support it openly due to Taiwan's unique diplomatic constraints.

Support for Taiwan has long been a sensitive issue among democracies. The extent of such support often fluctuates with the dynamics of U.S.–China, EU–China, and transatlantic relations, particularly in the security domain. For instance, while European states have expanded their economic and political engagement with Taiwan, they have remained cautious about security cooperation because of their relations with China. Meanwhile, Trump said the U.S.'s USD 14 billion arms sale to Taiwan was "a very good negotiating chip" with

China after he met Xi in May 2026, reflecting uncertainty about future U.S. support. [23] These uncertainties highlight the challenges Taiwan faces in strengthening undersea infrastructure protection through international partnerships.

Policy Recommendations for Long-Term Resilience

While Taiwan has adopted a comprehensive approach to enhancing the resilience of its submarine cable infrastructure, additional measures are needed to support its long-term objective of becoming a critical node in Pacific undersea communication networks. In particular, addressing vulnerabilities in energy and water supplies while strengthening domestic undersea cable repair capabilities and diversifying cable routes will be essential. These efforts would not only improve Taiwan's resilience against cable disruptions but also enable it to capitalize on the growing demand for AI infrastructure and semiconductor production, thereby expanding its capacity to host data centers and reinforcing its strategic role in the global undersea cable network.

1. Strengthen Resource Resilience

With sustainable and reliable energy and water supplies, Taiwan's ambition to strengthen its strategic importance as a key communication node in the Pacific will become more feasible, as international cable operators and digital service providers are more likely to view Taiwan as a stable, long-term investment partner.

A Increase Electricity and Water Prices

Taiwan's electricity and water prices are relatively low compared to those of other countries with similar political and economic stability and prospects, such as Japan and South Korea.[24] To improve the sustainability of scarce resources, Taiwan should further increase industrial electricity and water prices for resource-intensive companies to better reflect their consumption, while encouraging companies to be more proactive in developing their energy and water-saving measures to maintain their competitiveness. At the same time, higher domestic electricity and water prices can effectively deliver a strong message to civil society that the scarcity of electricity and water resources is not only an industrial issue, but also a national security issue.

B Increase Localized Renewable Energy Resources

Taiwan continues to rely on importing energy resources. In 2024, imported energy accounted for 95.8 percent of total energy supply, including LNG and nuclear energy.[25] To increase Taiwan's resilience against geopolitical factors that create uncertainty about imported energy, it is crucial to accelerate the adoption of domestically generated renewable energy, which can reduce reliance on imported energy and provide a more sustainable energy supply.

C Balance the Distribution of Semiconductor Fabs and AI Infrastructure in the North and the South

Balancing the distribution of high-energy and water-intensive facilities, such as fabrication plants and data centers, between the north and the south can reduce pressure on the transmission of energy and water from the south to the north. To achieve this, the government should provide additional incentives for companies to build facilities in the south to enhance the resilience of energy and water supplies.

2. Build Up Domestic Undersea Cable Repair Capacity

Technologically, Taiwan has accumulated the skills and expertise needed to repair undersea cables. The major issue Taiwan faces in building its own repair team is the lack of sufficient market demand for repair services. It is expensive for private companies to maintain a cable repair crew without stable market demand. However, Taiwan

should build up its repair capacity and establish a task force to safeguard its undersea cable infrastructure, even if doing so does not align with market interests. The government should adopt the mindset that helped build Taiwan's semiconductor industry in the 1970s and 1980s by devoting resources and providing strong economic incentives for Taiwan's domestic companies to take on this role, thereby building a "national team" that serves as the first responder to undersea cable disruptions.

3. Diversify International Connectivity and Invest in Alternative Routes

To further enhance digital resilience, a more diverse network of cable operators and routes is needed. As global reliance on undersea cables grows, countries are seeking alternative pathways to reduce geographic and strategic vulnerabilities. One recent development is the "Polar Connect" project, whose first phase was launched in 2025 by the Nordic countries and the European Union. This project aims to establish a new undersea cable route through the Arctic Ocean, linking Europe, North America, and Asia.[26] While the planned Asian landing points are currently Japan and South Korea,[27] this initiative exemplifies emerging opportunities for diversification. Taiwan should actively explore ways to participate in or connect to initiatives like Polar Connect. Engaging with emerging trans-Arctic cable projects—whether as a future landing point, through interconnection agreements, by investing in complementary infrastructure, or by building partnerships with project stakeholders—would help diversify Taiwan's international cable routes. Such involvement would not only enhance Taiwan's digital resilience but also strengthen cooperation with like-minded partners and reinforce its position within global connectivity networks.

Author –

Yi-Chieh Chen *is a Research Fellow and a Project Manager at the Institute for Security and Development Policy's Stockholm Taiwan Center.*

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