Walsin Energy Cable System

Ocean Digital Infrastructure

Cables & Smart Maritime Technology

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Walsin Energy Cable System

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Outline

Presentation download link

https://ppt.cc/fngYBx

Walsin Energy Cable System (WECS)

A leading submarine cable manufacturer in Taiwan and Southeast Asia

60
Years Experience

WALSIN 華新麗華 WALSIN LIHWA

Decades of land cable manufacturing expertise

\+

TOP 3
Global Position

NKT

Among world's leading submarine cable manufacturers

=

1st
In Taiwan

Walsin Energy Cable System 華新能源電纜系統股份有限公司
A Walsin Lihwa & NKT Joint Venture

Taiwan's first submarine cable manufacturing facility

Established Expertise

- WECS was founded as a joint venture between Walsin Lihwa and NKT, combining over 60 years of experience.
- This partnership **ensures high-quality submarine HVAC power cables** tailored to regional needs.

Asia–Pacific Submarine Cable Logistics Hub

- WECS's factory **in Kaohsiung Port** offers ample quayside space and CLV-compatible berths.
- Its location allows short sailing distances to key Asia–Pacific markets, enabling efficient, reliable delivery of submarine power-cable systems.


華新能源海底電纜廠開幕暨高雄港A6-A碼頭啟用典禮
WECS Kaohsiung Submarine Cable Factory and Kaohsiung Port Pier A6-A Inauguration Ceremony
NKT
WALSIN
TIPC
Walsin Energy
Walsin Energy Cable System
TIPC

Powering The Future

THE STRATEGIC IMPERATIVE: SECURING TAIWAN'S ENERGY FUTURE

Bolstering National Energy Security

Mitigating geopolitical risks by building domestic manufacturing for critical infrastructure.

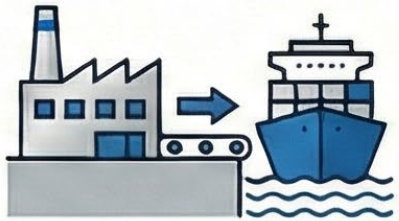
Achieving Energy Independence

Eliminating reliance on foreign suppliers and the risk of supply chain disruptions.

Ensuring Long-Term Grid Resilience

Local production enables rapid maintenance for offshore wind farms' 25-30 year lifespans.

THE FOUNDATION FOR SUCCESS: KEY ELEMENTS OF OUR VENTURE

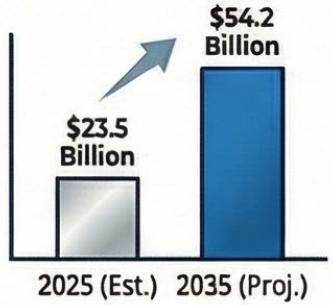


Prime 'Port-Factory Integrated' Location

Our Kaohsiung Port facility allows direct, zero-delay shipment from factory to vessel.

Partnership with Global Leader NKT

Our joint venture brings world-class technology, processes, and quality control systems.

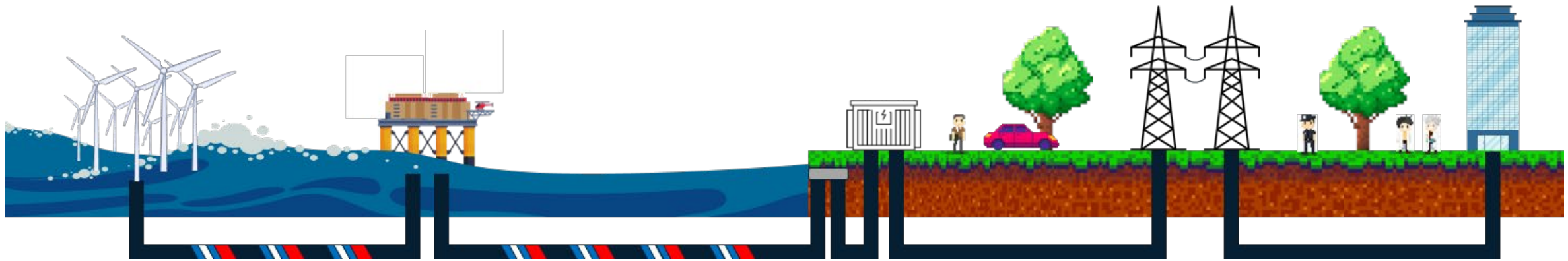


Tapping a Booming Global Market

The global submarine power cable market is forecast to grow significantly.

Walsin Group Synergy

Integrated cable end-to-end solutions



Comprehensive Expertise

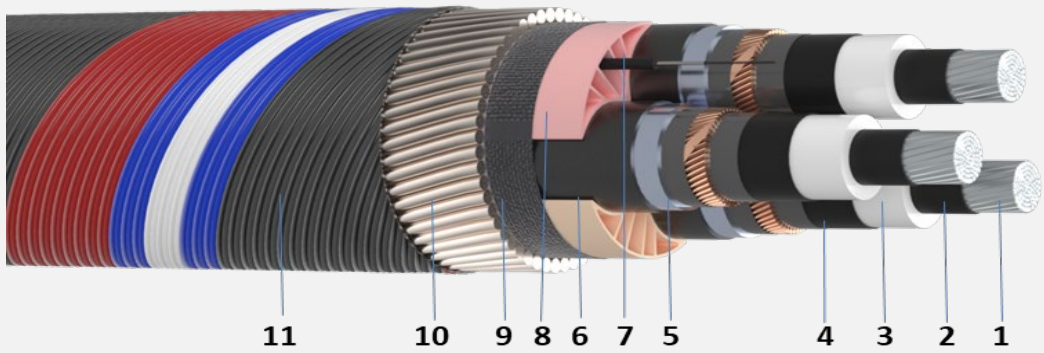
- Walsin Lihwa brings over 60 years of experience in land-based HV transmission experience.
- This know-how enables **smooth integration between onshore grids and subsea** cable systems.

Unified Supply Chain

- WECS and Walsin Lihwa deliver an end-to-end cable chain **from turbine to seabed to substation**.
- One coordinated team handles design, manufacturing and logistics, reducing interface risks.

Offshore Power Cable Types IAC & EC

Offshore Inter-Array Cable (IAC)
Short / 66kV/ APL



1. Conductor (Cu or Al)
2. Inner semi-conducting layer
3. XLPE insulation
4. Outer semi-conducting layer
5. Aluminum tape

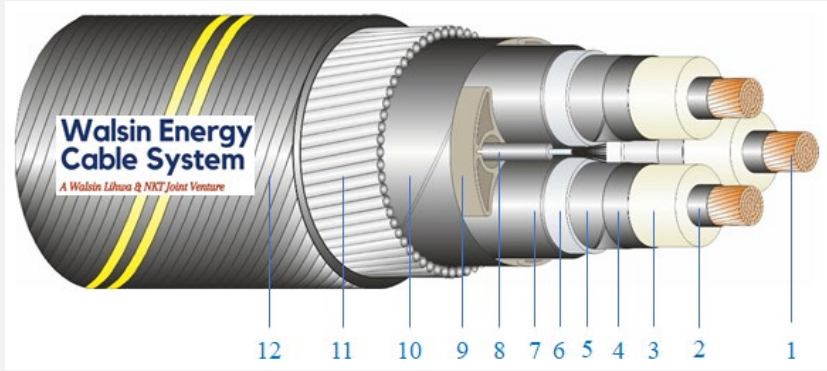
(or Copper wire +Copper tape)

6. PE oversheath with semi-con skin layer

5+6. Al-PE laminated sheath

7. Fiber optic cable
8. Profile Filler
9. Bedding(Semi-conductive tape)
10. Armouring (GS or SS) + Bitumen
11. Outer serving (PP yarn)

Offshore Export Cable (EC)
Long / 220kV or 275kV / Lead sheath



1. Conductor (Cu or Al)
2. Inner semi-conducting layer
3. XLPE insulation
4. Outer semi-conducting layer
5. Swellable tape (Semi-Conductive)
6. Lead sheath

7. Semi-conductive PE oversheath
8. Fiber optic cable
9. Profile Filler
10. Bedding (Semi-conductive tape)
11. Armouring (GS or SS) + Bitumen
12. Outer serving (PP yarn)

Strategic Perspective

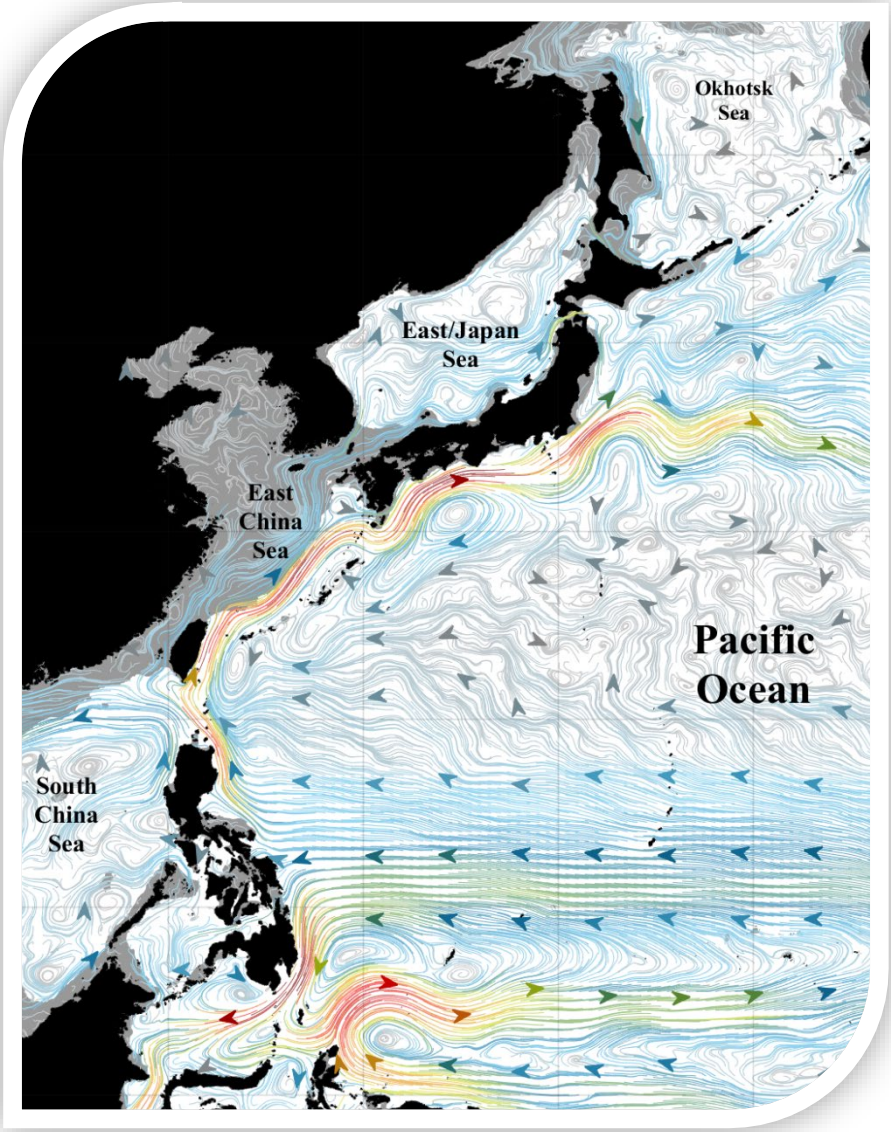
Connecting Taiwan and the Philippines

Archipelagic Similarities

- Both Taiwan and the Philippines face shared challenges as archipelagic nations, including vulnerability to climate change, fragmented energy grids, and **logistical difficulties in managing remote islands**.

Climate Vulnerabilities

- Exposed to similar environmental risks, both nations contend with natural disasters such as **typhoons and earthquake**, which exacerbate their energy security issues and highlight the need for improved infrastructure solutions.



The velocity distribution of Kuroshio current.

Energy Challenges for Island Systems

From Fossil Fuel Vulnerability to Offshore Grid Interconnection

Fossil Fuel Dependence

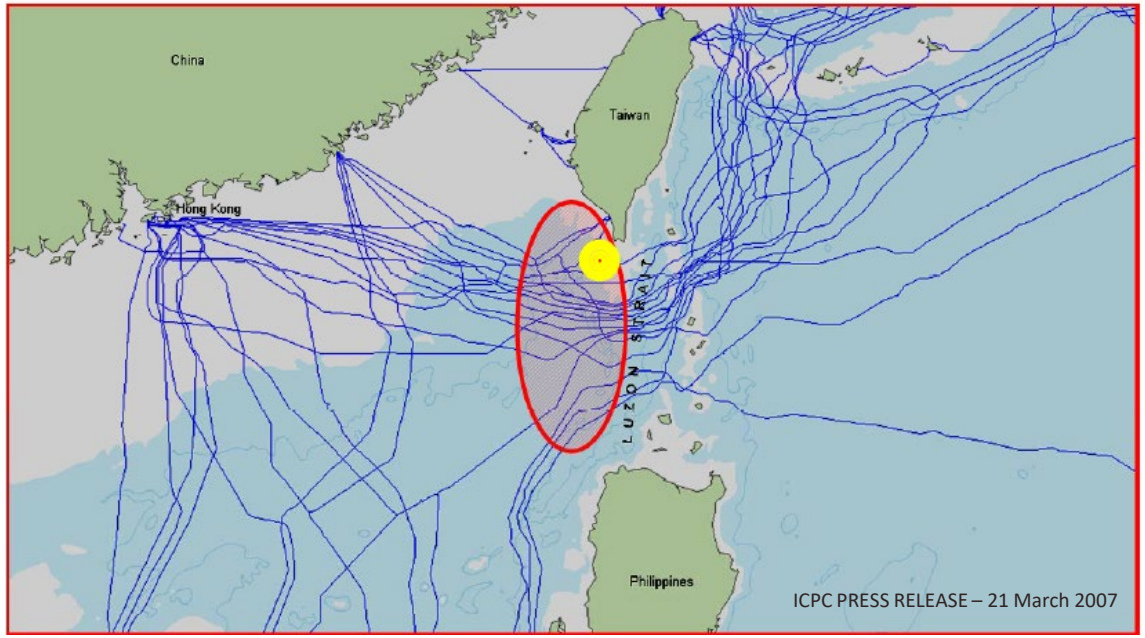
- Many islands face **high and volatile energy costs** due to heavy reliance on imported fossil fuels.
- This dependence exposes them to price and supply shocks, undermining economic stability and the **resilience** of local energy systems.

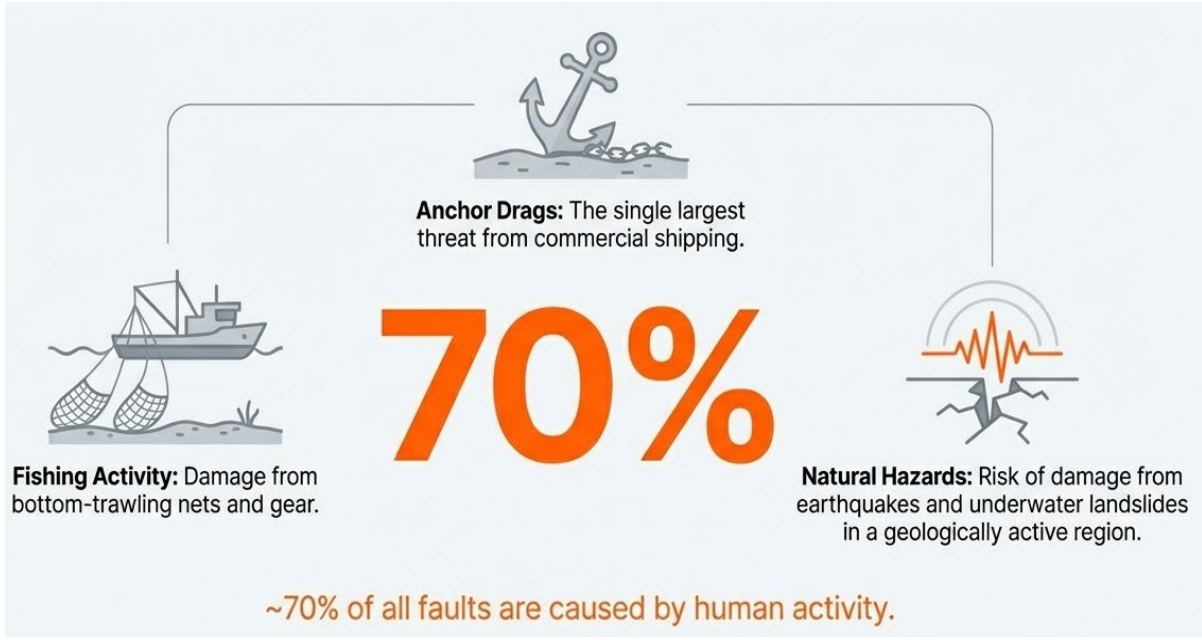
Rising Demand for Renewables

- With offshore wind emerging as a key resource, the focus is shifting to **greater energy self-sufficiency**.
- This transition necessitates **robust subsea cable infrastructure** to reliably connect offshore generation to island grids.

Subsea Cable Damage

Insights from Global Incidents





Earthquake Impact

- The 2006 magnitude 7.1 Hengchun earthquake damaged multiple telecom cables.
- **Nine submarine cables** in the Strait of Luzon, between Taiwan and the Philippines, were broken thus disabling vital connections between SE Asia and the rest of the world.

Human Activity

- Recent incidents in the Baltic and Red Seas demonstrate that human activities, such as fishing and shipping, pose significant risks to subsea cables, **necessitating enhanced protection measures**.

Breaking News

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News | Politics Education Environment Traffic Crime Brainteaser

Vietnam's Phu Quoc relies on a single undersea cable for 70% of its power, a vulnerability exposed by recent outage

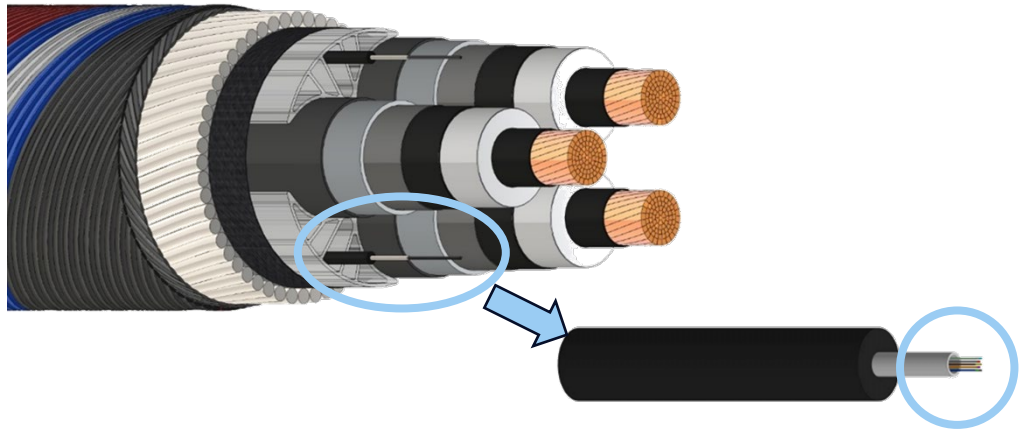
By **Le Tuyet, Ngoc Tai** December 5, 2025 | 08:05 pm PT

source: VnExpress International Report

Aerial view of a corner in Phu Quoc, Vietnam at night. Photo by VnExpress/Ngoc Thanh

Sensing Capabilities

Enhancing Cable Functionality and Protection



Source: AP Sensing

Source: AP Sensing

Dual Function

- Submarine cables today serve not only as power conduits but also as **sensing networks**.
- They support real-time monitoring of environmental conditions and potential threats, improving operational safety and efficiency.

DAS Technology

- Distributed Acoustic Sensing (DAS) turns **optical fibers** inside the cable into high-resolution sensors.
- These sensors detect vibrations and disturbances, providing critical data for proactive maintenance and **timely responses to emerging risks**.

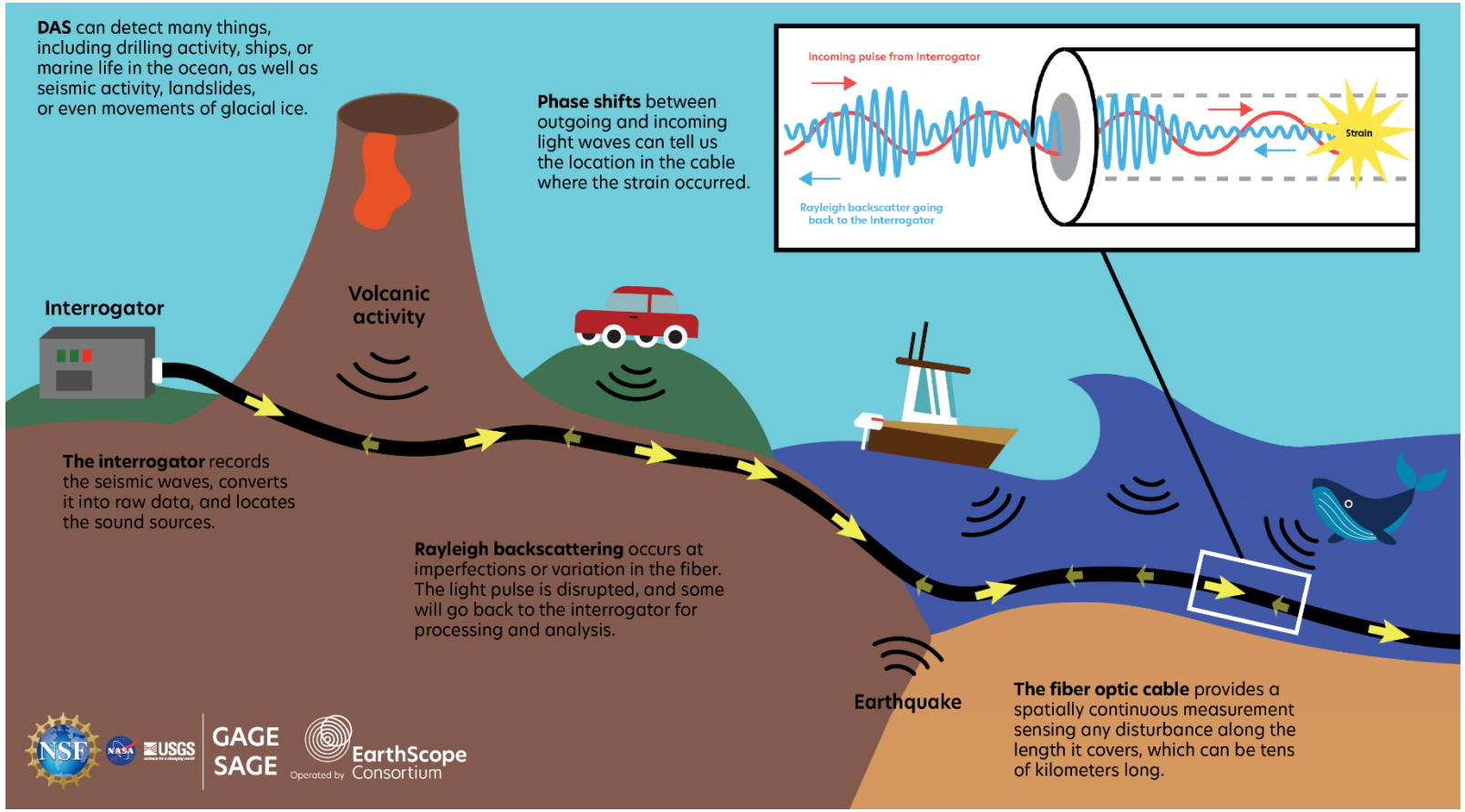
DAS Overview Continuous Sensing for Cables

Sensing Technology

- DAS uses embedded fibers within cables to **continuously monitor** their condition.
- It delivers **real-time data on strain and vibrations**, enhancing situational awareness and the safety of critical infrastructure.

Enhanced Protection

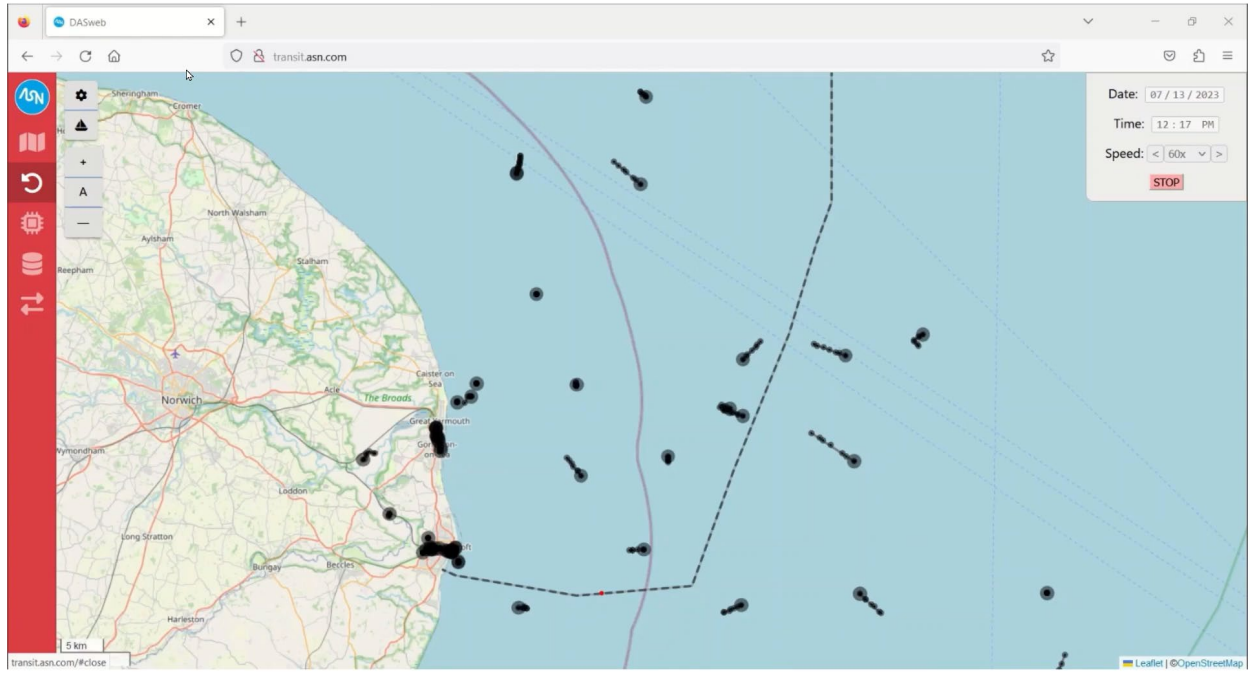
- When DAS is integrated with fiber optics, the system becomes a proactive monitoring platform.
- It enables **early detection** of potential threats, helping ensure the reliability and availability of subsea connections.



Source: Davie Loria/EarthScope

Integrating DAS

Enhancing maritime awareness and protection



Source: https://www.asn.com/fiber-sensing/

Enhanced Monitoring

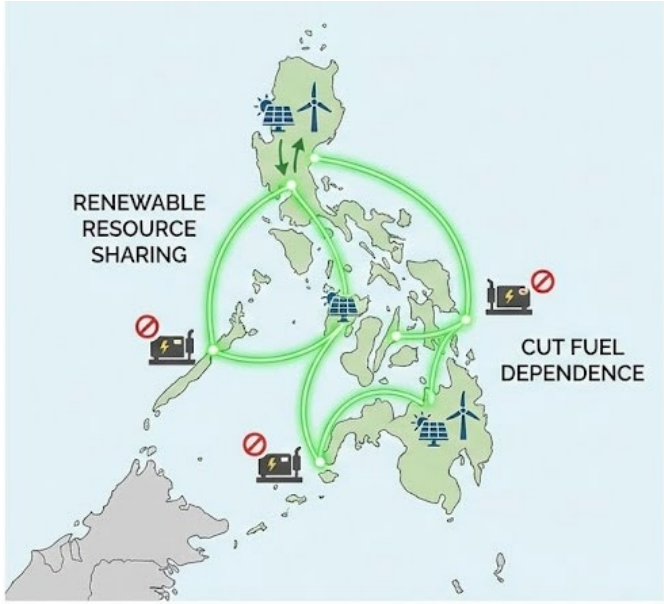
- Combining DAS with Automatic Identification System (AIS) enables **real-time vessel tracking** along cable routes.
- This integration enhances **maritime awareness** and supports proactive responses to potential threats near sensitive infrastructure.

Operational Coordination

- Coordinating DAS alerts with vessel movements allows operators to pinpoint specific sources of risk.
- This supports timely intervention and closer collaboration with **coast guards** and regulators to safeguard subsea infrastructure.

Conclusion

Adapting Taiwan's lessons for the Philippines



Candidate Inter-Island Corridors

- Identify subsea corridors that link major Philippine islands with smaller, diesel-reliant islands, enabling green interconnections.
- **Share renewable resources, cut fuel dependence, and build a more resilient archipelagic grid.**

DAS-Enabled Cable Protection

- Equip inter-island cables with DAS on existing fiber pairs to detect anchors, trawls and seismic events in real time.
- Combine DAS alerts with AIS and coast-guard response to **prevent damage**, shorten outages, and keep critical links between islands secure.

Thanks for your attention