Recent Topics on Submarine Cable Planning and Maintenance – A Cable Owner's View –

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1. Recover or not to recover? – Old, old cable –

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- Currently, many "out of service" cables are being recovered because of steep rise of material prices, e.g. copper.
- This trend is welcomed for cable owners to avoid unnecessary conflicts with other sea bed users to explore new routes.
- Although submarine telecom cables' environmental impact is said be minor to benign, issues of micro-plastic particles may pose us to revisit the cases.

2. Continue to use of not to continue? – Old cable $-_3$

- Advancement of SLTE with digital coherent technology

 → Applied for upgrading even DMF* cables
 (*Dispersion Managed Fiber, around 2000-2010)
 cf. J-US (2001), originally designed as <u>10Gx16ch</u>x4FP,
 is now upgradable to more than <u>100Gx16ch</u>x4FP.
- Expectation of a longer cable life beyond the design life of 25 years
- Steel wire armour for optical submarine cable in shallower water may be affected by electrical corrosion over time

caused by electromotive force due to geomagnetic and tidal current, etc. The status of cable installed at shallower water must be inspected periodically for a planned repair.



Thinned down armour wires (recovered JIH cable)

3. Drop in or not to drop in? – Planned Cable –

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- Now, direct connection from Singapore to USA is available.
- The cable landing stations in the mid of the route <u>can be skipped</u> or covered as a branch.
- Whether a country is preferred/selected for a branch will depend on the <u>demand</u>, suitable <u>location</u> for landing, <u>power configuration</u> and that there is no overly stringent conditions for permit or regulation.

N.B. The increased and diversified cables will directly lead to the resiliency of a country's international networks.

4. Maintain or not to maintain? – for future –

- Limited manpower and staff aging can be seen world-wide.
- Forcing education of cable technician is difficult.
- KDDI with an assistance with KCS*, facilitate onsite training for cable station staff by on-board cable repair engineers.
 *Cable Ship Operator.



*Cable Ship Operator, 100% Subsidiary of KDDI

On site training at Hong Kong by KCS experts for on-board repair work.

(FYI) International submarine cable failures at the East Japan Earthquake, March 2011

