Cable System Planning and Permitting: Business and Stakeholder Considerations

Submarine Cables in the Sargasso Sea: Legal and Environmental Issues in Areas Beyond National Jurisdiction

The George Washington Law School, October 23, 2014

Bob Wargo

Cable System Planning and Permitting

Rationale

Financial Planning

Cable System Planning

Permitting

End of Life Options

Predicting the Future

Cable System Planning and Permitting – Rationale

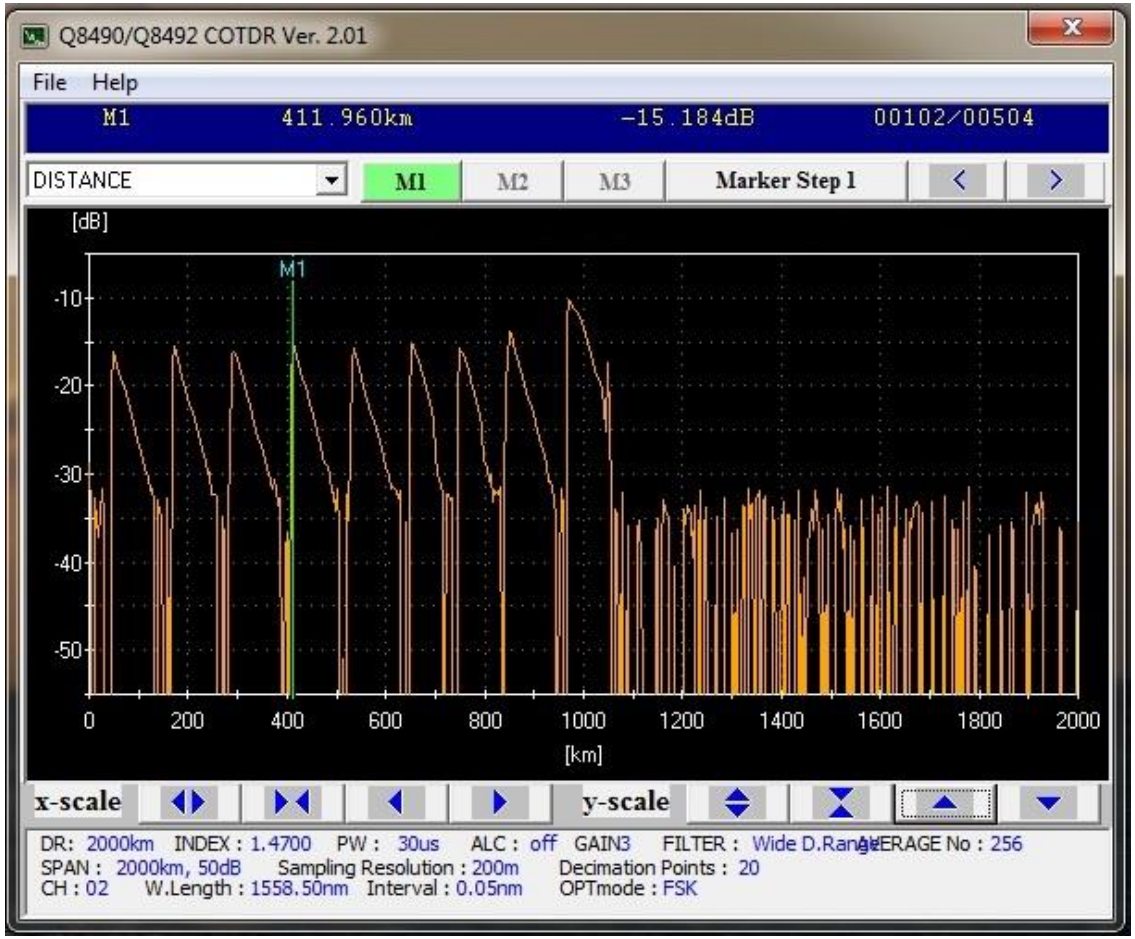
Cable Owners want their cables in service in a timely manner, i.e., no or minimal permitting delays.

Cable owners want the most direct route across an ocean, typically this is a Great Circle Route. Across the Atlantic these look very much like shipping routes used for 100's of years

Once a cable is installed, the cable owner wants it to continue working throughout its design life with no, or minimal, maintenance activity or repairs.

Cable System Planning and Permitting – Rationale

We don't want this!



at&t

Cable Planning – Financing the Cable

A trans-oceanic cable can cost $500M (US) or more so it is a challenge to finance. There are two general ways this is done.

Consortium

- Numerous (20-30) telecommunications companies jointly fund the building of a cable and own their proportionate share of the capacity.

Privately Financed

- 1 to a few owners

Likely to begin 2-3 years prior to the Cable being laid!

Cable Planning – Desk Top Study (DTS) and Route Survey

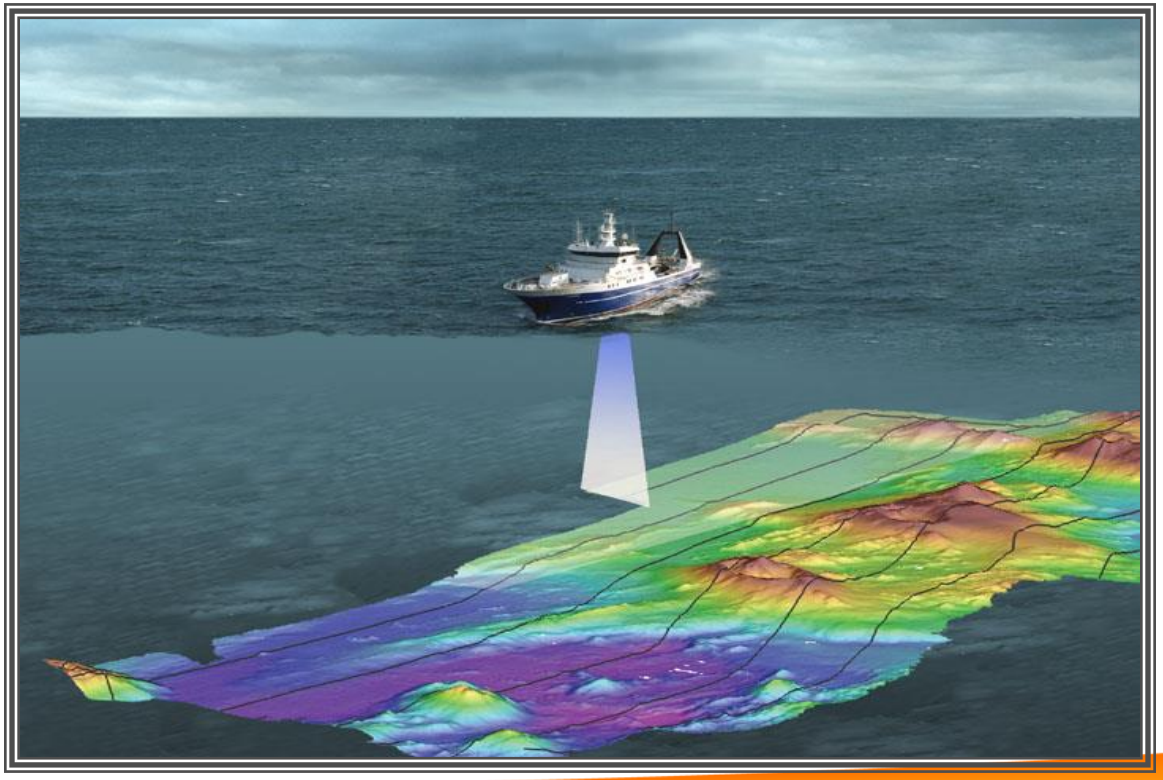
DTS uses a pre-survey route to find hazards by review of…

- Scientific and gray literature
- Fault rates of previous cables in the area
- Detailed nautical and bathymetric charts
- Fisheries and shipping information

The DTS refines a general route for the Route Survey

Cable Route Survey

Cable routes are carefully surveyed to minimize environmental impacts and to maximize cable safety. The Route Survey further refines the (DTS) route by identifying potential hazards via side-scan SONAR, magnetometer, seismic profiling and seabed mapping systems – the latter accurately chart depth, topography, slope angles & seabed type



Source: NIWA, NZ

Cable Planning – Cable Route

The final cable route selected will be a balancing between cost and protection and, to the maximum extent, will avoid hazards and obstacles such as..

- Fishing Areas
- Anchorages
- Military Operations Areas
- Munitions or other Dumping Areas
- Environmentally sensitive areas (reefs, mangroves, etc)

In deep water (such as that of the Sargasso Sea) the most benign sea bed will be selected, seamounts will (and have been) avoided. Flat and uninteresting is good!

Cable Planning – The Cable System

Optical Fiber

- Highest quality available.
- Quantity = 4x to 8x Oceanic Length
- More than one type of fiber required

Cable and Amplifiers

- Armoring, protection and slack management based on Route Survey
- Cable "tuned" based on Optical Amplifier spacing and fiber types in cable.

System Assembly

- Cable sections and amplifiers are assembled into a nearly complete system, coiled in tanks in the factory then loaded onto ships for installation.

Terminal and Power Feed Equipment

Cable Permitting

To land or operate a submarine cable in the United States, an operator must obtain a cable landing license from the Federal Communications Commission pursuant to the Cable Landing License Act of 1921.

- FCC must seek approval of the U.S. Department of State
- DOS coordinates with U.S. Department of Commerce's National Telecommunications and Information Administration and the Defense Information Systems Agency.

Team Telecom review for security issues

- Department of Defense
- Department of Homeland Security
- Department of Justice

Permitting in National Waters

The State Environmental Department (e.g., NJDEP) will conduct an environmental review pursuant to the Coastal Zone Management Act as part of their granting a submerged lands lease (3 NM).

Environmental review from the U.S. Army Corps of Engineers under the National Environmental Protection Act.

Consultation with various agencies, U.S. Fish and Wildlife Service, the National Marine Fisheries Service of the National Oceanic and Atmospheric Administration, etc.

Local permits for works.

National Permitting outside of national waters is not allowed under UNCLOS nor is it necessary.

End of Life/Out of Service Cables

ICPC Recommendation No. 1 reflects the custom and practice in the industry with respect to out of service cables and provides cable owners with a decision matrix for cost benefit analysis of what to do with a cable that is out of service.

Most undersea cables are left in place when out of service, available for re-use or recycling if the opportunity arises.

End of Life/Out of Service Cables

Recovered cables have been place on artificial reefs in both NJ and MD – typically near shore armored cable.

Limited lengths of deep water cable have been recovered and recycled limited by crossings and close parallels.

Out of service cables have been recovered and reused (e.g., GEMINI Bermuda, CB-1) or donated to scientific institutions (IRIS, University of Hawaii)

Currently three companies engaged in recovery and recycling of near shore and deep water cables around the world.

Future Cables in the Sargasso Sea

As future cables would likely follow well established routes it is unlikely that any great portion of the undersea telecommunication network will traverse and thus affect the Sargasso Sea.

In addition, much of the increase in capacity across all ocean basins in the past 8-10 years has been due to upgrading existing systems rather than installing new systems.

Most recent cable in the Atlantic went from Canada to Greenland and Iceland. Few in planning are northern routes as well (e.g., Hibernia Express)

Due to financial pressures and technical advances this trend is likely to continue.