

BUILDING SUBMARINE CABLES

PNG LNG FIBRE CABLE PROJECT FOR OFFSHORE PLATFORMS



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For Offshore Platform Communications
- PNG LNG Fibre Cable Project

INTRODUCTION

Building Submarine Cables



DataCo is a new PNG SOE established in 2014 Is building the PNG National Transmission Network (NTN) Will be responsible for National and International submarine cables and international gateways.

The NTN will use part of the PNG LNG fibre cable. The PNG LNG fibre cable project completed in 2014 serves a major new PNG oil and gas project example of Government and private enterprise working together to provide much needed fibre infrastructure for public communications. Use of fibre technology to offshore and on shore serve oil and gas installations provides new fibre capacity to parts of PNG that would otherwise not be able to economically justify the investment DataCo is now commercialising some of the fibres.

Submarine Cables in PNG

NATIONAL AND INTERNATIONAL PROJECTS

INTERNATIONAL SUBMARINE CABLES

Existing Cables
APNG-2 and PPC-1

Planned new cable from Port
Moresby. A number of options being
considered

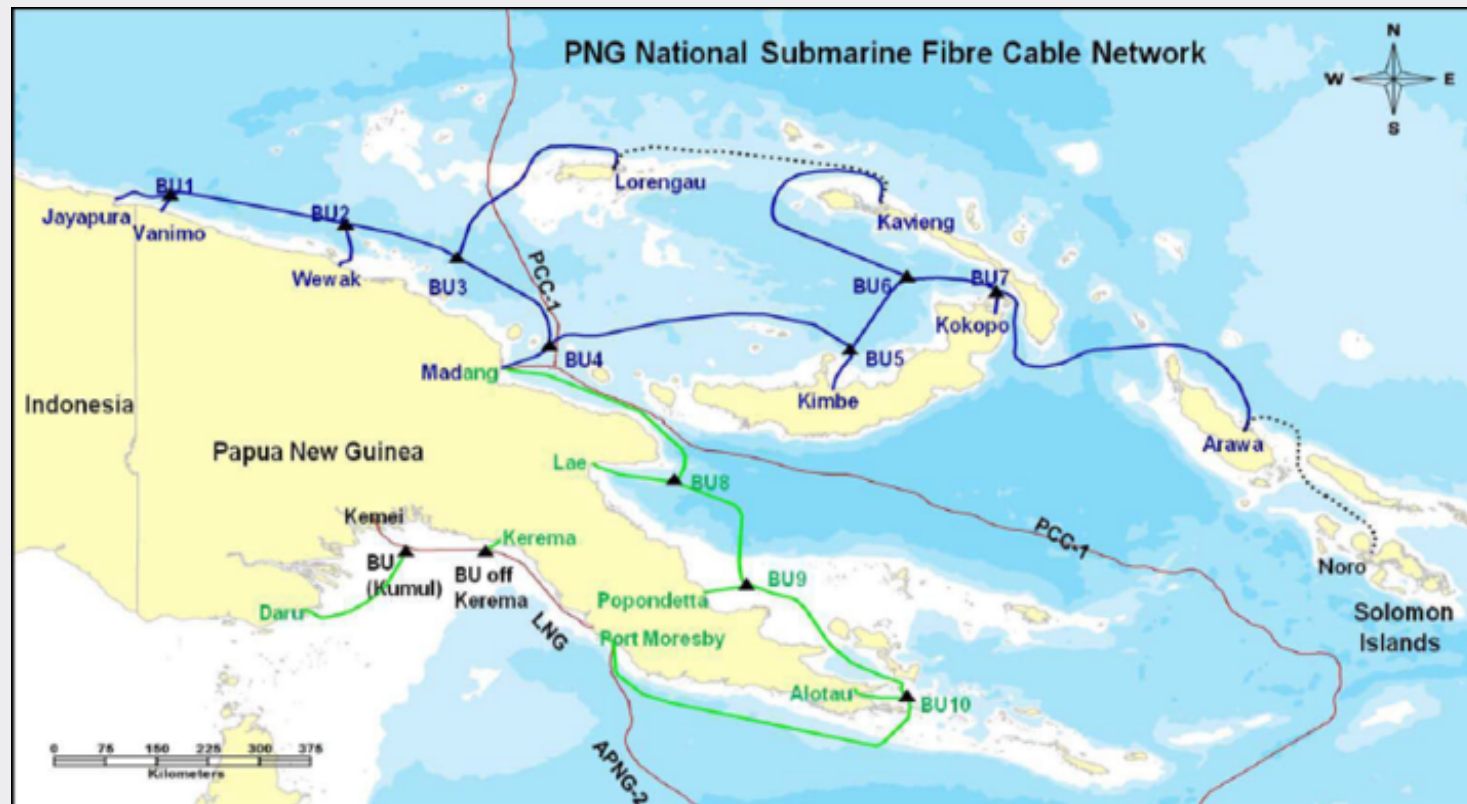
NATIONAL SUBMARINE CABLE PROJECT

Planned new 5,500km
Domestic Submarine Cable Network
Connecting 14 coastal centres
and major islands in PNG

At the vendor evaluation stage

Proposed PNG

NATIONAL SUBMARINE FIBRE OPTIC CABLE NETWORK



The PNG LNG Fibre cable will form part of the PNG National Submarine fibre optic cable network

Trends

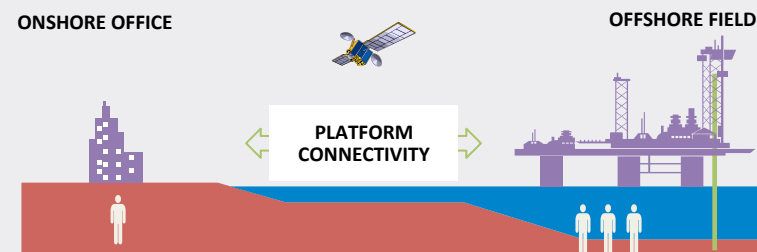
OIL AND GAS OFFSHORE OPERATIONS

TODAY

ONSHORE OFFICE

- Post operations modeling
- Information & data backup

ONSHORE OFFICE



OFFSHORE PLATFORM

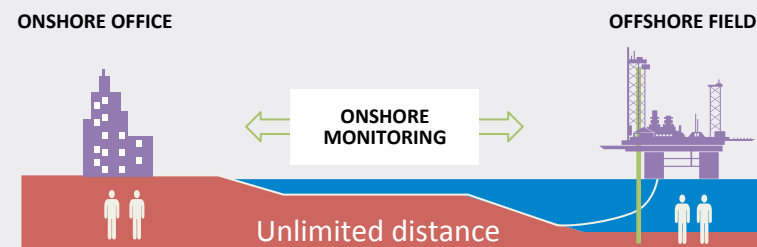
- Onsite measuring and interpretation
- Decision and action

SHORT TERM

ONSHORE OFFICE

- Real time monitoring
- Operations real time modeling
- Communication of key issues & remarks to offshore field

ONSHORE OFFICE



OFFSHORE PLATFORM

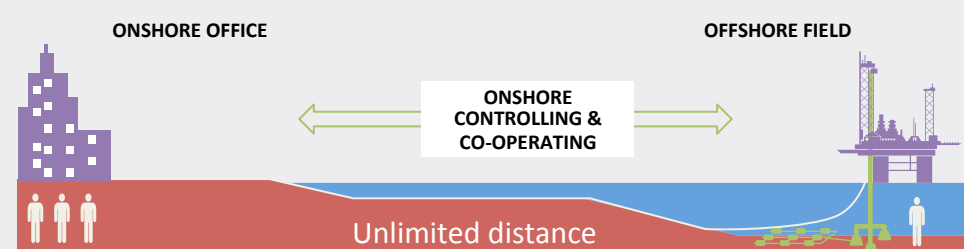
- Onsite measuring
- Onshore office information and consulting on key issues
- Decision and action

LONG TERM

ONSHORE OFFICE

- Real time controlling and contribution to operating decisions

ONSHORE OFFICE

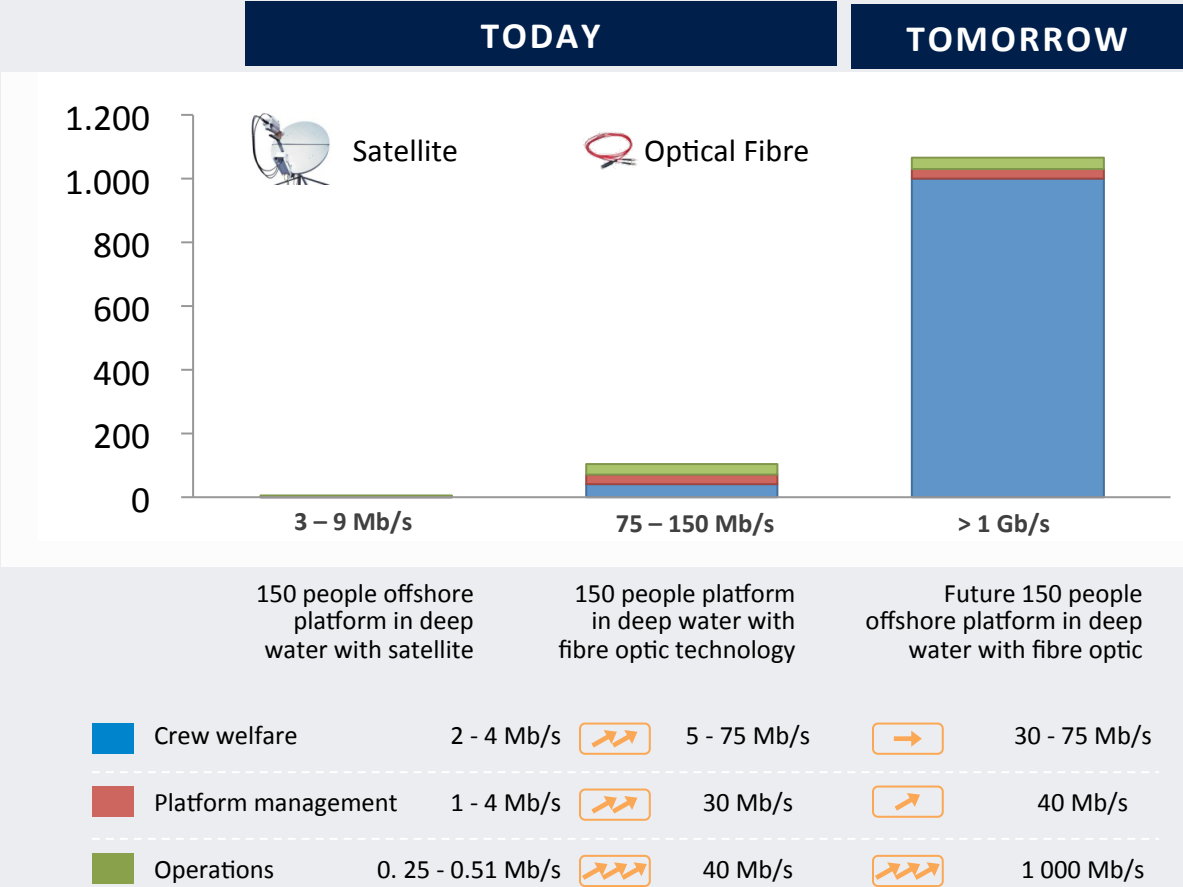


OFFSHORE PLATFORM

- Action and key HSE decision

MOVING TOWARDS REMOTE MONITORING & LESS HUMAN PRESENCE ON THE PLATFORM

Capacity REQUIRED NOW AND IN THE FUTURE



Currently, data transmission on an deep water offshore platform far from the shore is limited and constrained by its satellite connection to well below 10 Mb/s





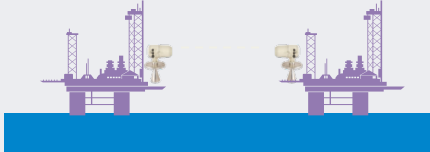
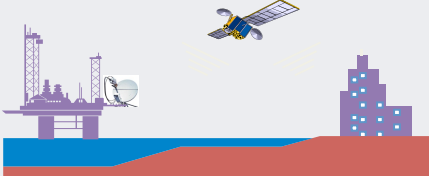
Platforms already connected with optical fiber technology benefit from much higher capacity (~1Gb/s installed capacity) and experience much higher traffic (75 – 150 Mb/s)

Data transmission for operations will jump in future platforms connected with optical fibre given the increased weight of remote control and new operations needs such as Permanent Reservoir Monitoring

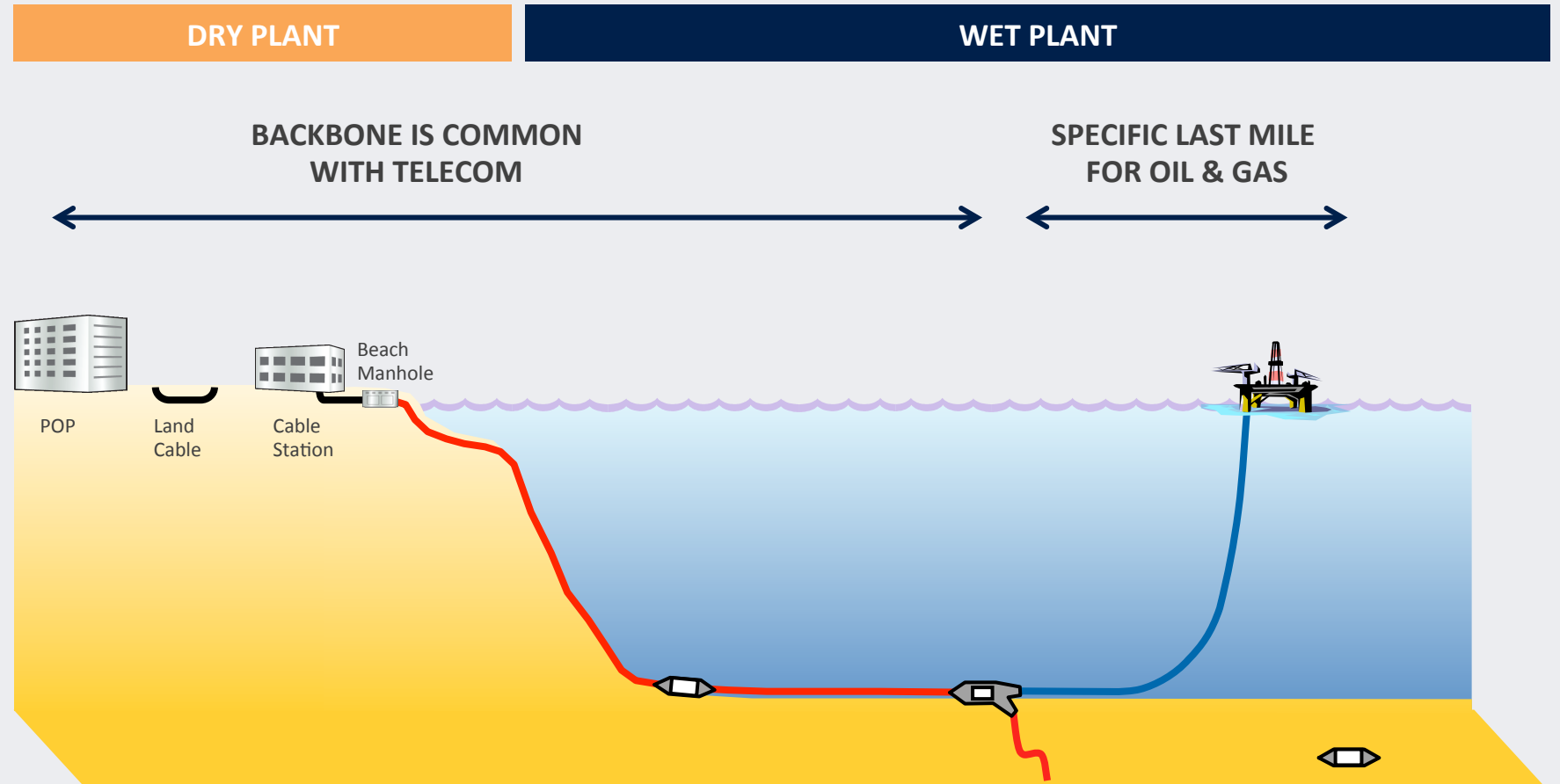
FIBRE MATCHES THE DATA TRAFFIC NEEDS OF TODAY AND TOMORROW

Connectivity Options

THE THREE MAIN OPTIONS

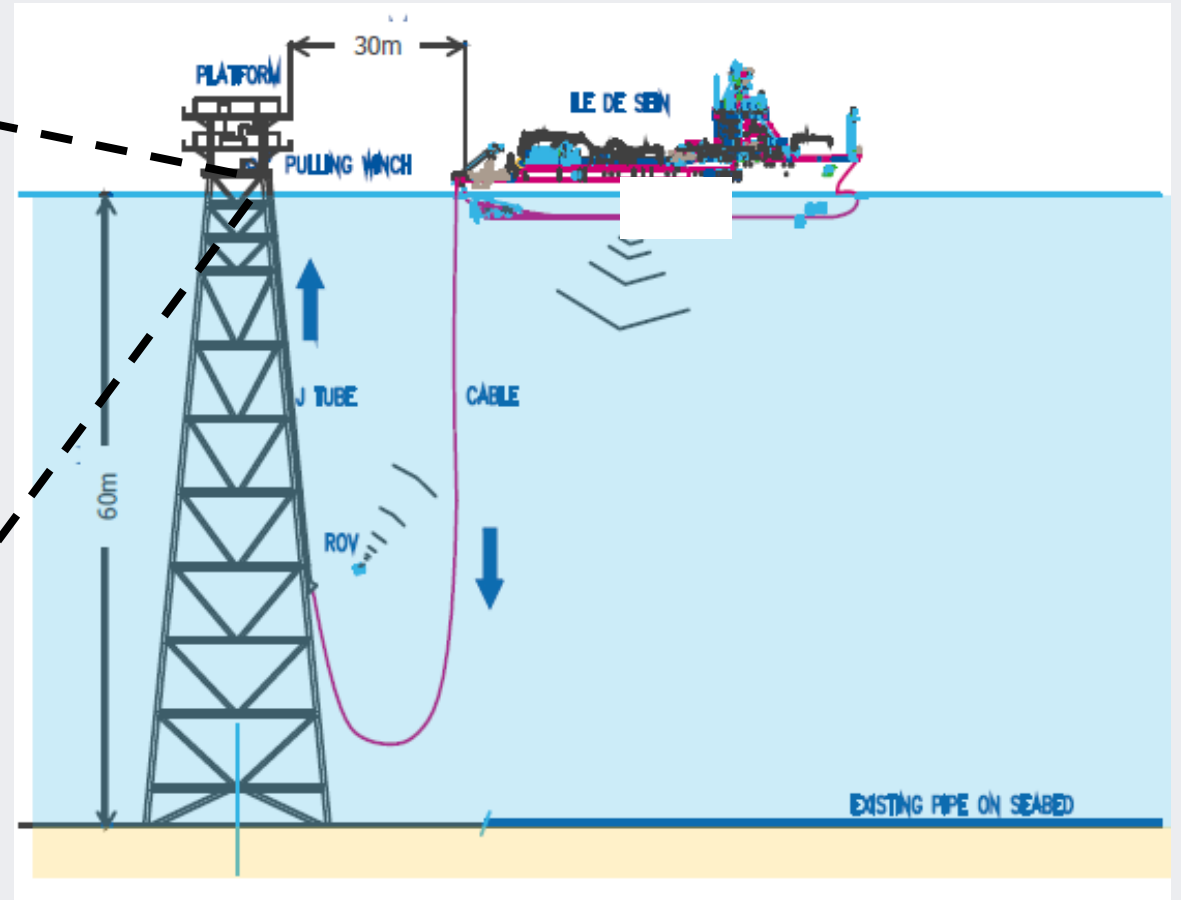
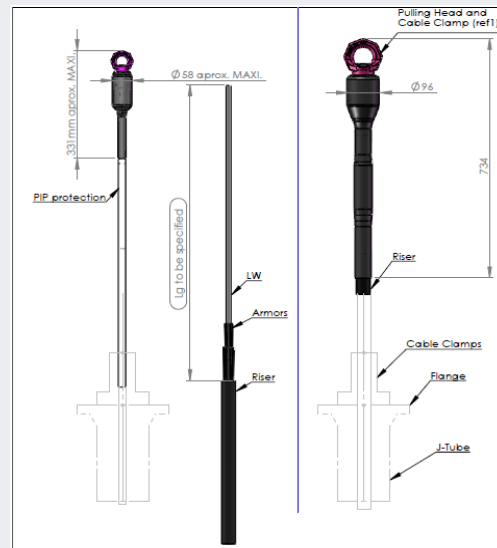
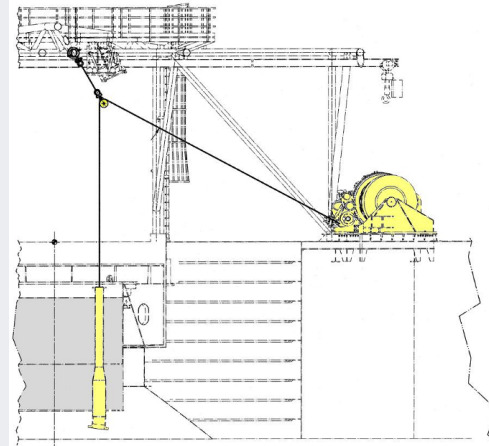
	PLATFORM CONNECTIVITY PROVIDED BY		
	 OPTICAL FIBRE	 MICROWAVE / TROPOSCATTER	 SATELLITE
			
REACHABLE DISTANCE	Unlimited	<150 km	Unlimited
CAPACITY	Up to 10 Tb/s	300 Mb/s	10 Mb/s
CONNECTION	Point to point & point to multi-point	Point to multi-point	Point to point
RELIABILITY	+++	+	++
CAPEX/OPEX	\$\$\$/\$	\$\$/\$\$\$	\$\$/\$\$\$
OPTICAL FIBRE OFFERS THE BEST MIX			

Fibre connection TO OFFSHORE PLATFORMS



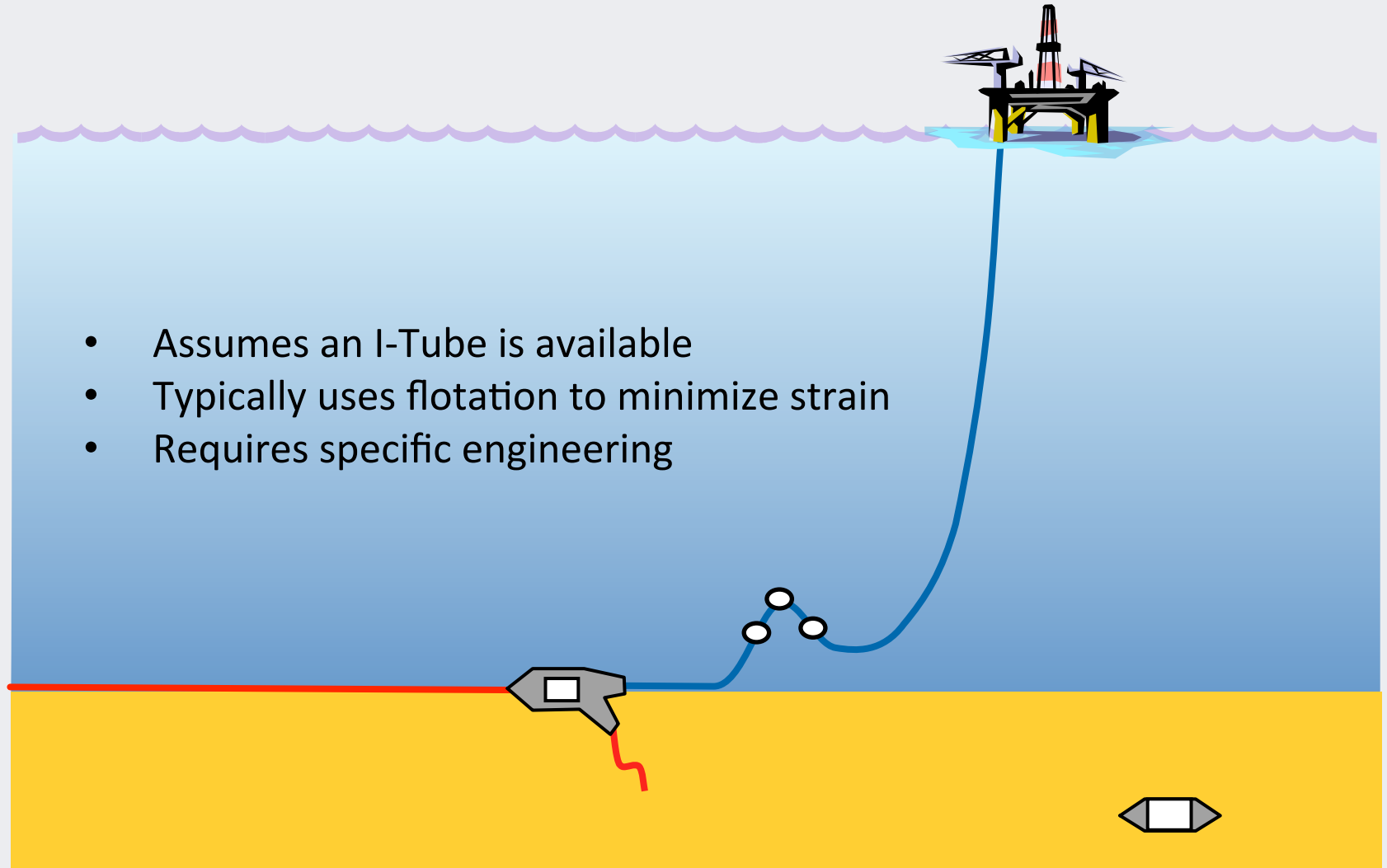
Fixed Platform

STATIC RISER CABLE INSTALLATION IN I/J TUBE

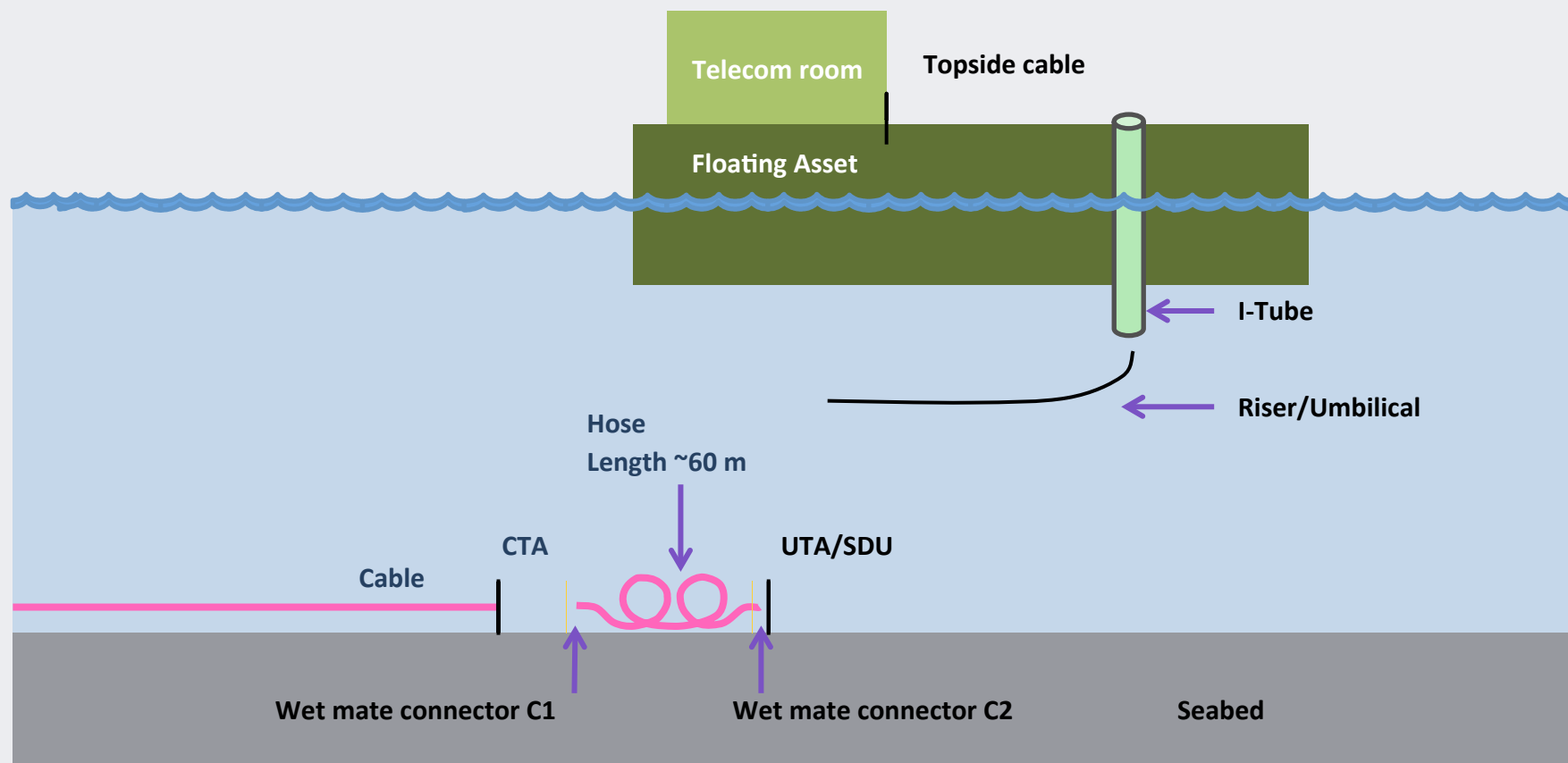


Dedicated Dynamic Riser

- Assumes an I-Tube is available
- Typically uses flotation to minimize strain
- Requires specific engineering



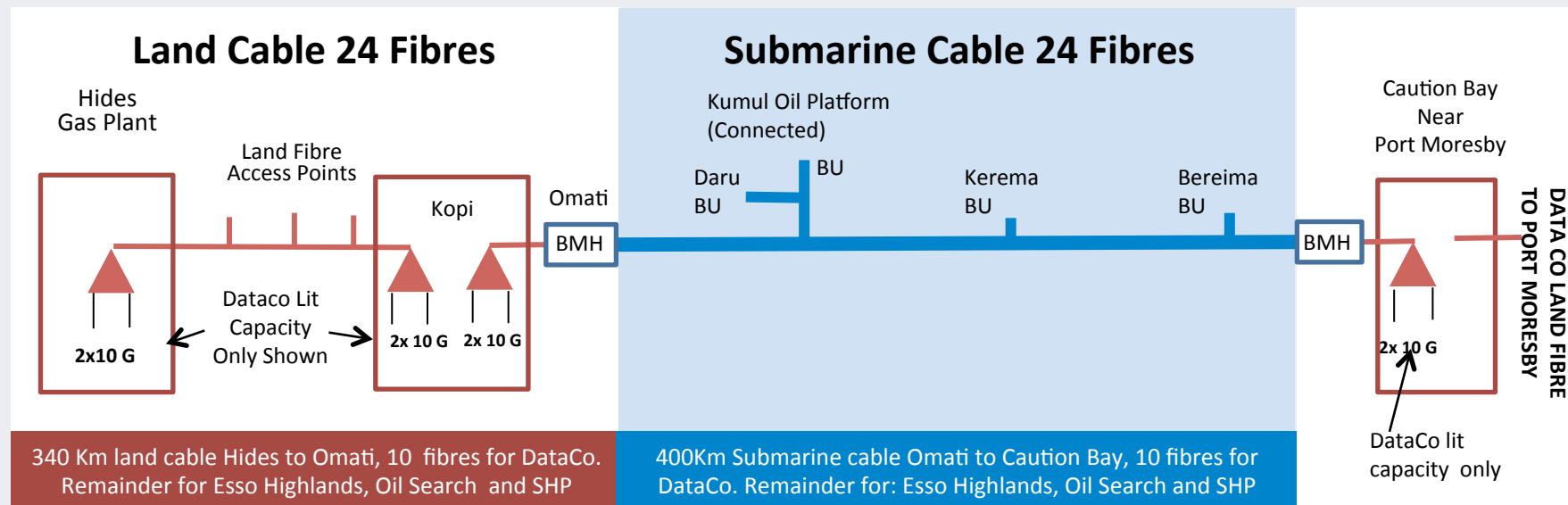
Subsea Connections Principle



PNG LNG Fibre Submarine Cable Route



PNG LNG Fibre cable system



- Repeater less 24 optical fibre cable Hides to Port Moresby
- 340Km land fibre optic cable plus 400Km Submarine fibre cable
- Alactel Submarine Networks turnkey contractor to ExxonMobil for submarine part
- Extera Optical SLTE
- Exxon operate and maintains the cable

PNG LNG Submarine Cable

**CONNECTING REMOTE
PRODUCTION PLATFORM
TO ONSHORE FACILITIES**



Fibre connection to a fixed offshore platform (Kumul Marine Terminal) through a J-tube. Provides communication from the platform and associated equipment to Port Moresby

Additional BU's provided for future use for National Submarine Fibre Cable connection to: Daru, Kerrima and Bereima

SUMMARY

Only fibre can provides cost effective and reliable communications solutions for the long term communication needs of off shore oil and gas operator for.

Fibre solutions are more expensive than alternatives such as satellites so have a number of economic and technical issues that need to be resolved.

The PNG LNG fibre project is a good example of where the economic and technical problems were successfully solved.

The project was technically difficult because of the remote location and difficult route e.g. the fibre cable was required to be buried over a long length of the submarine route in the delta of the Fly River.

The project structure is an example of successful Government and the oil/gas companies cooperating to share costs to enable the superior fibre solutions for the oil and gas project operator as well as to provide much needed communications capacity in remote areas of PNG which would otherwise not be viable for fibre communications.



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