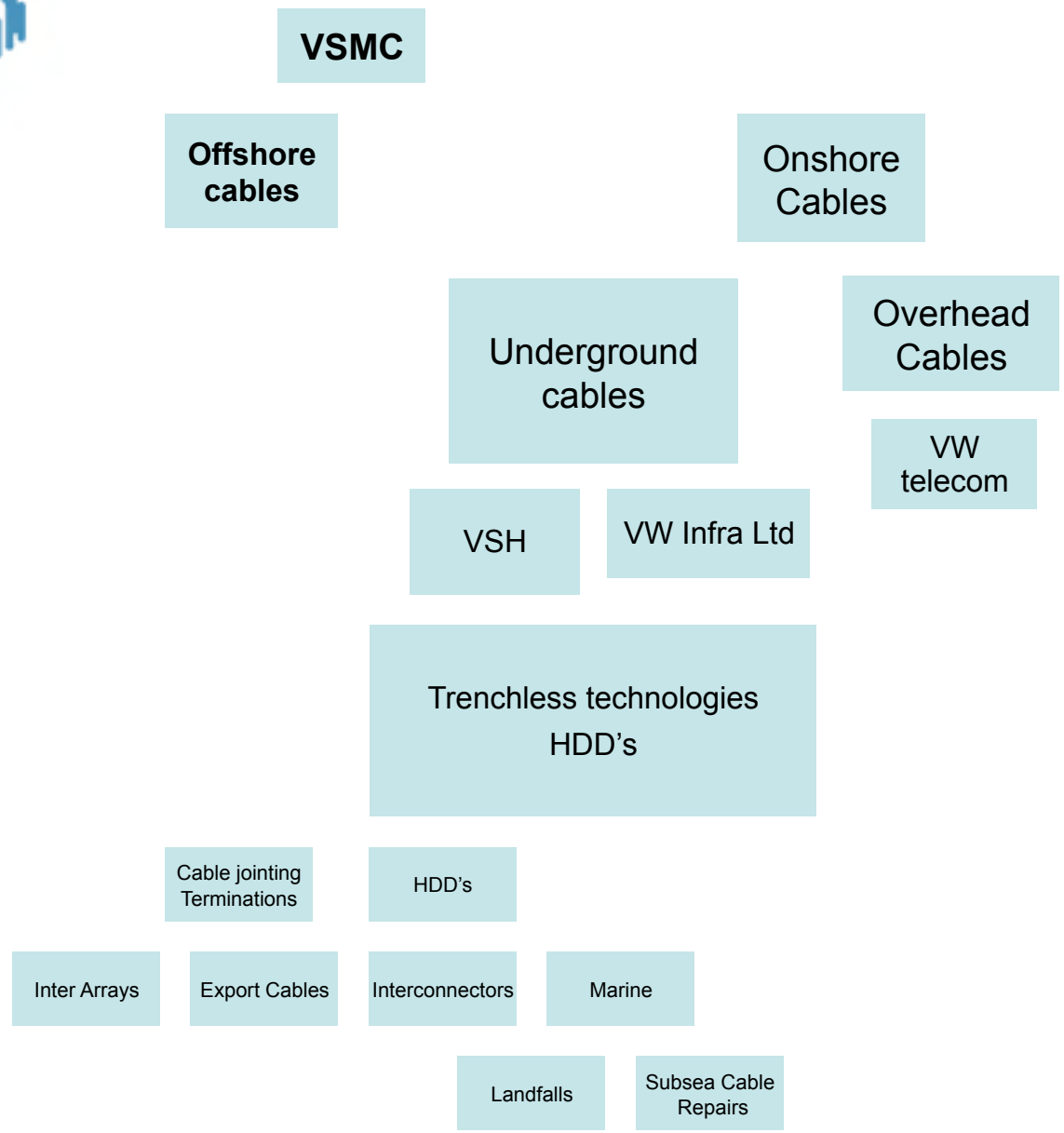
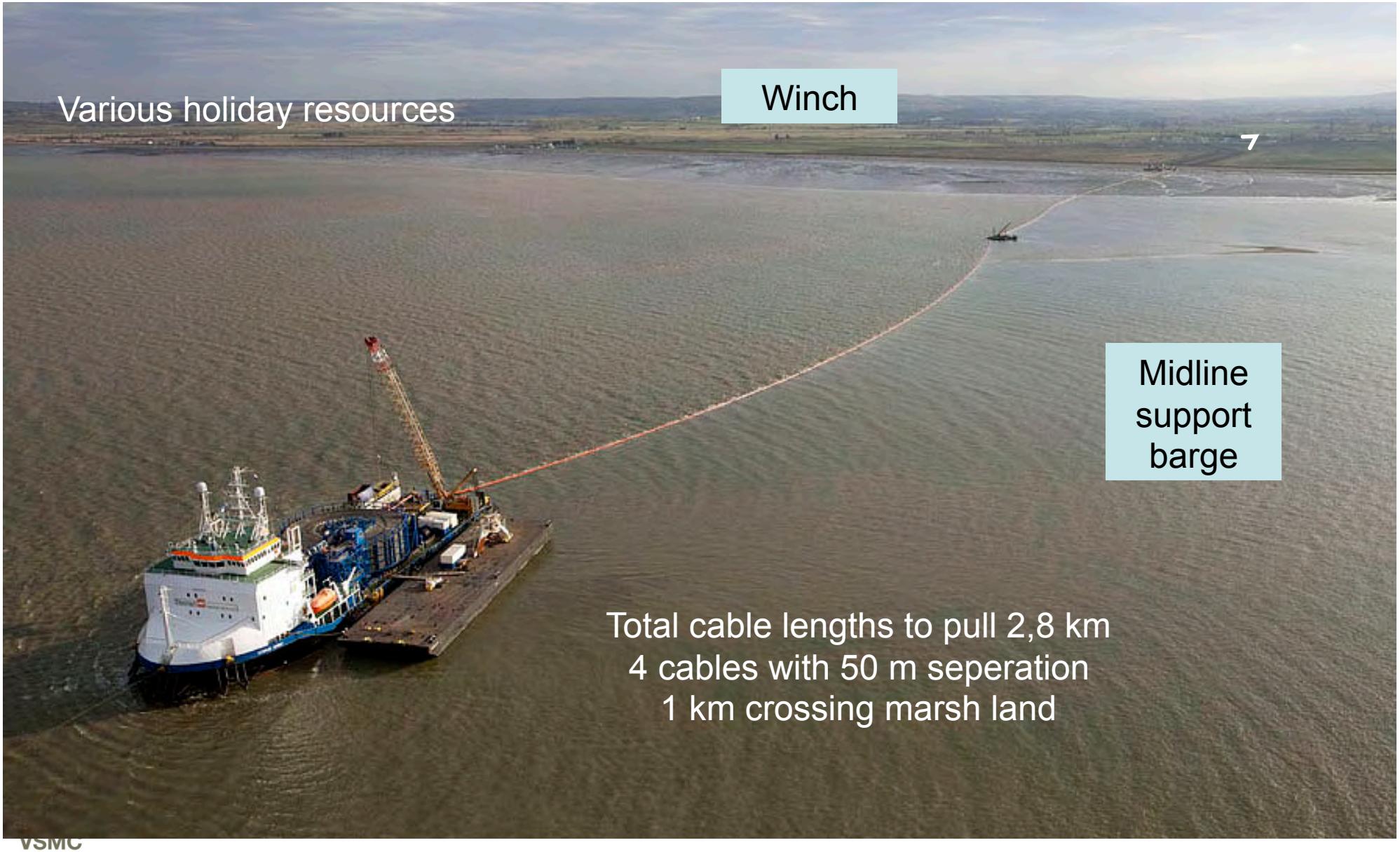
Can technology support our environment ?

- Trenchless Cable Solutions
- Cable Handling & Logistics

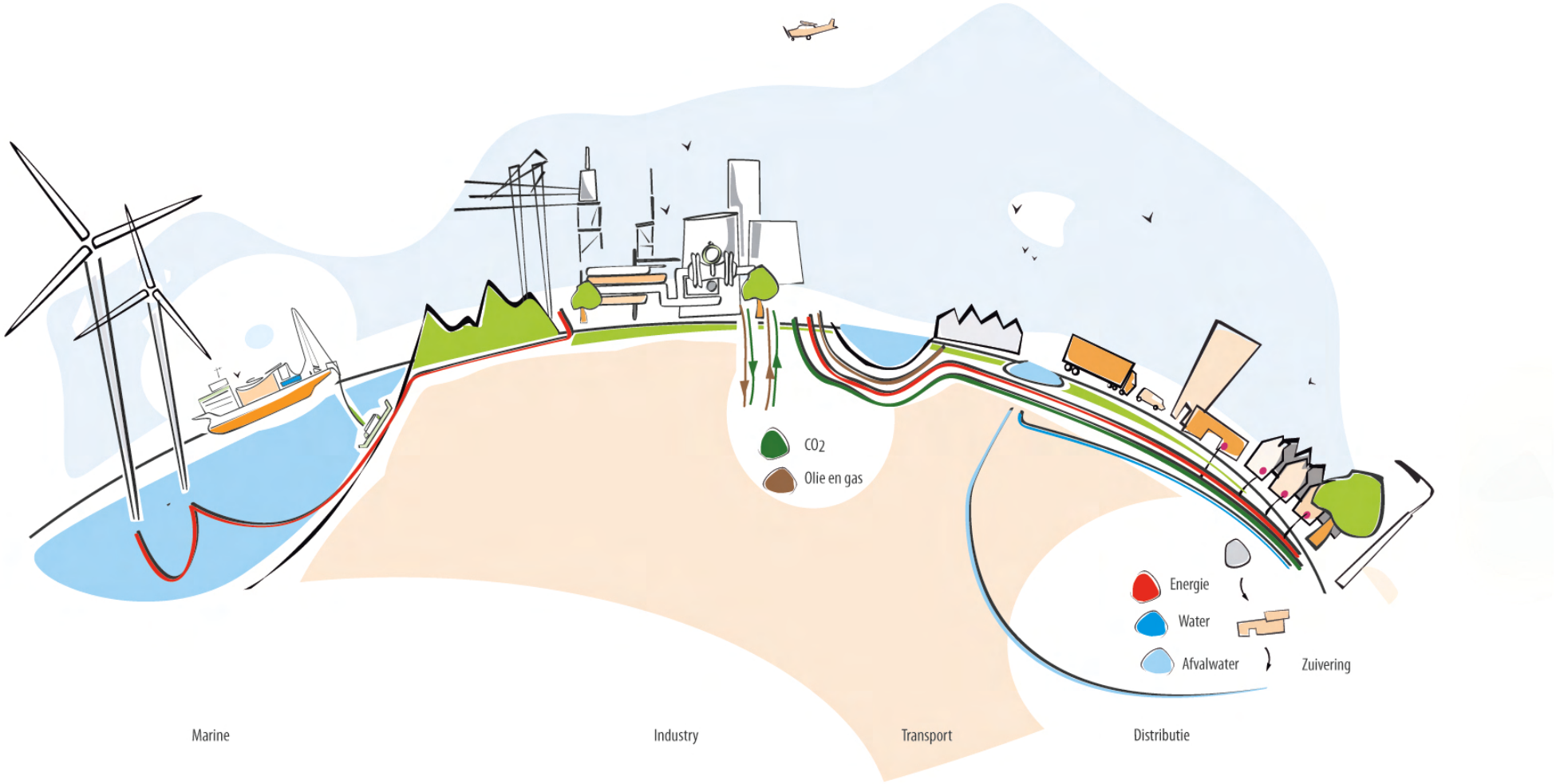
Ton Geul — Business Development Manager VSMC
Pieter de Kam — General Manager VSH-Cables (Q&A)


VSMC
Offshore cables
Onshore Cables
Underground cables
Overhead Cables
VW telecom
VSH
VW Infra Ltd
Trenchless technologies HDD's
Cable jointing Terminations
HDD's
Inter Arrays
Export Cables
Interconnectors
Marine
Landfalls
Subsea Cable Repairs

UK - London Array: 4 cables - Shore Landings



What we do ?
Connecting (y)our Energies



Which challanges do we meet together ?

- We all need energy in todays society !
- There is not a single solution to deliver energy for all users (large or small).
- Therefore we need to find an acceptable balance in various solutions such as use of overhead lines and underground cable solutions. These solutions are not competing with eachother, they cooperate !
- Each of these concepts have advantages and disadvantages (technical and financial)

- Last but not least how to improve the overall connection times. Some projects last years to develop with all its consequences !

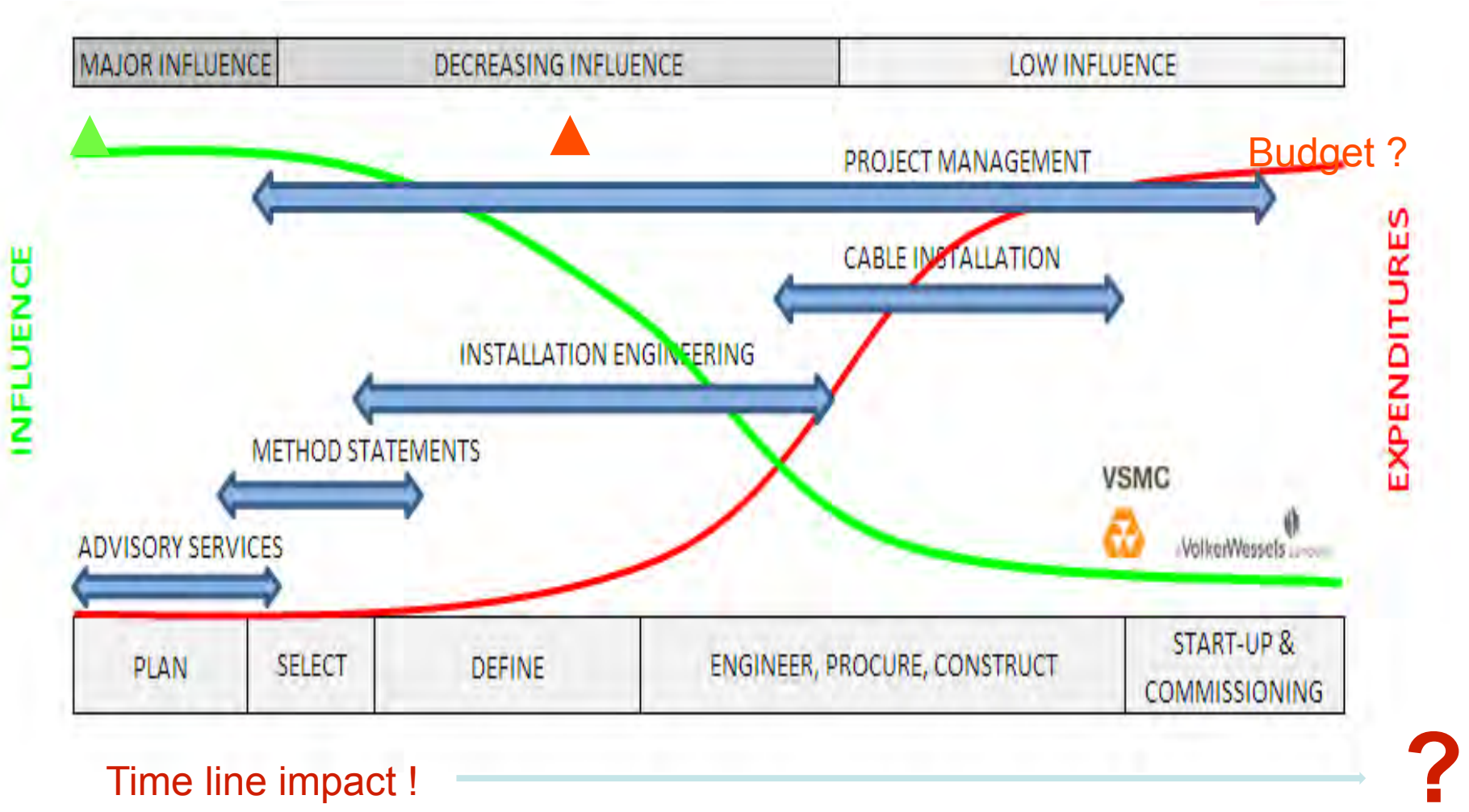
Which power cable solutions can we consider ?

Overhead lines:

Underground cables:

Open trench

Benefits for all stakeholders of early involvement of Contractor(s) in cable installation process



Horizontal Directional Drilling

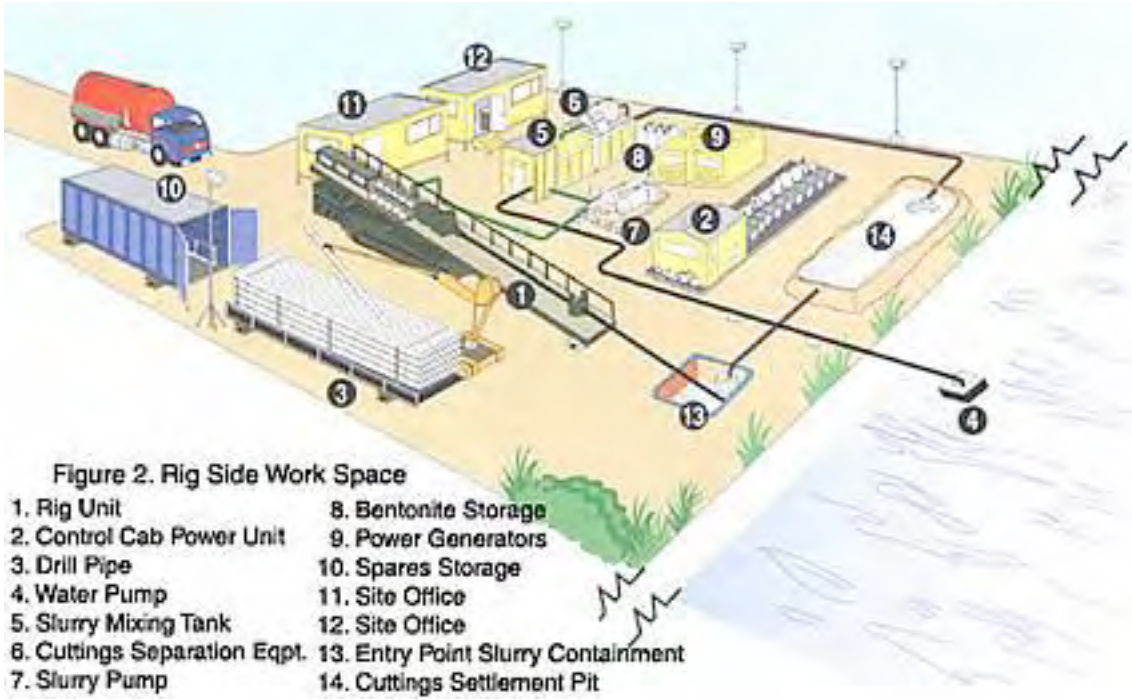
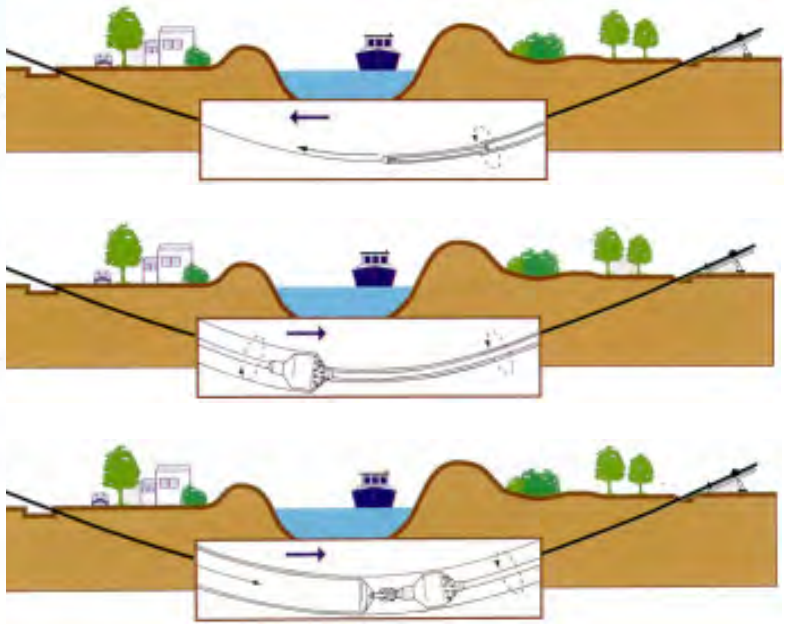
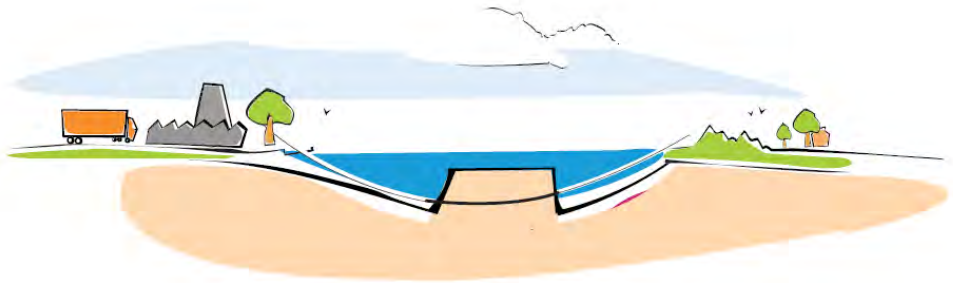


Figure 2. Rig Side Work Space

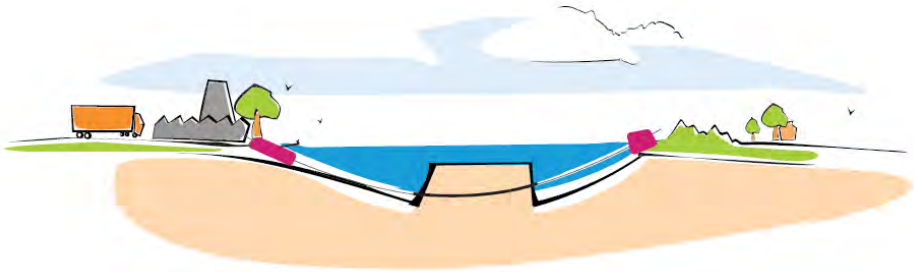
1. Rig Unit
2. Control Cab Power Unit
3. Drill Pipe
4. Water Pump
5. Slurry Mixing Tank
6. Cuttings Separation Eqpt.
7. Slurry Pump
8. Bentonite Storage
9. Power Generators
10. Spares Storage
11. Site Office
12. Site Office
13. Entry Point Slurry Containment
14. Cuttings Settlement Pit



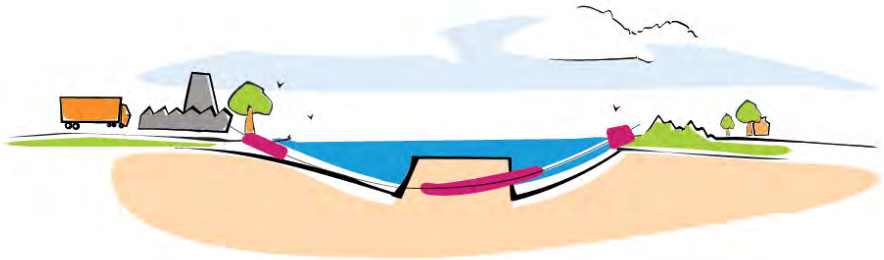
Principle Horizontal Directional Drilling Steps for Trenchless Cable “Crossing” Solutions



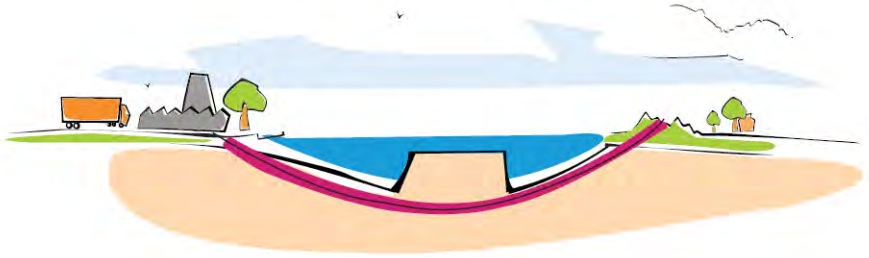
start



pilot

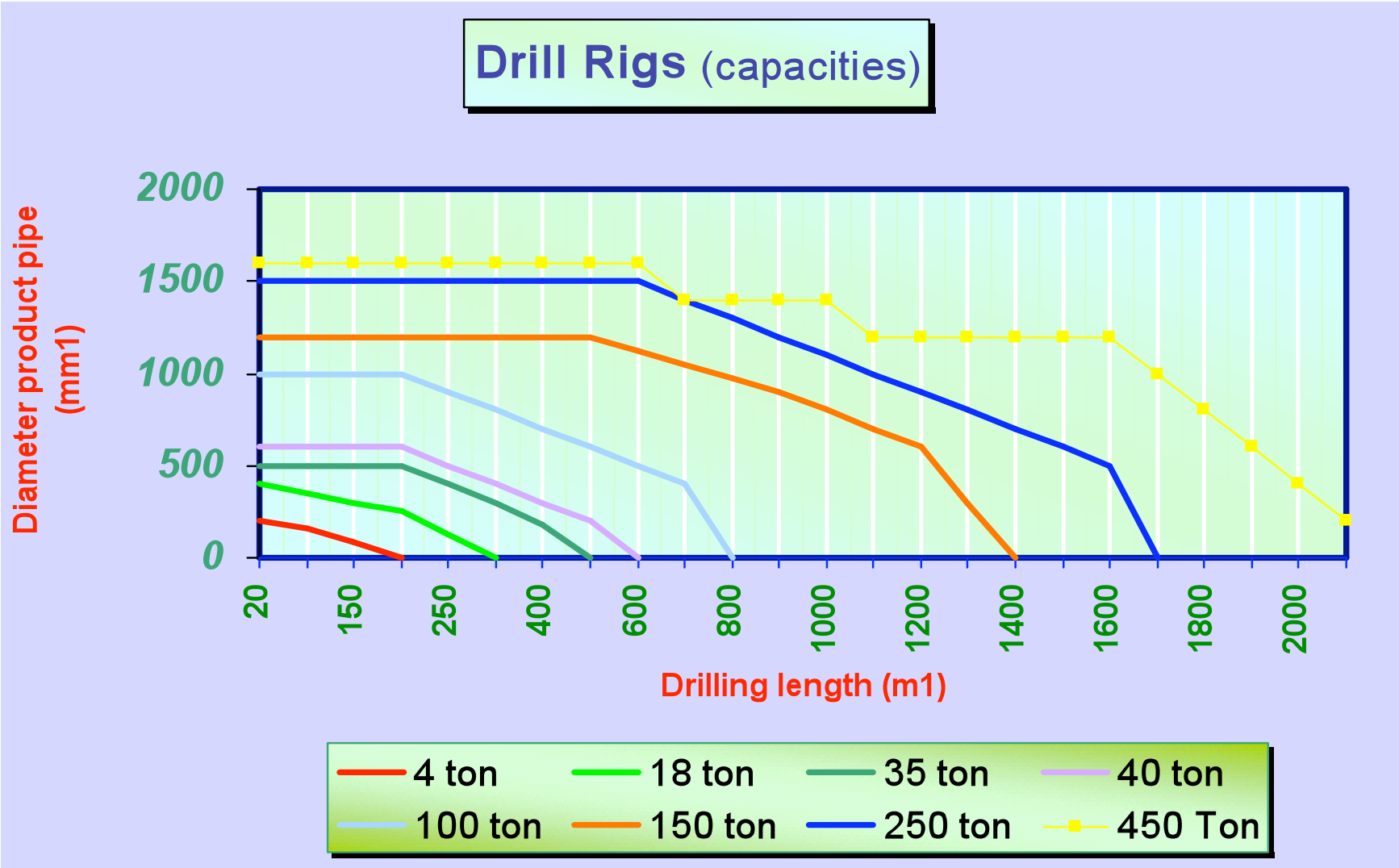


reaming



finish

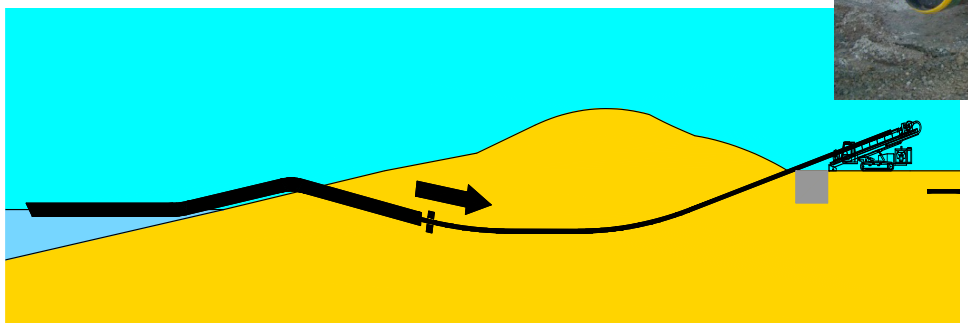
Horizontal Directional Drilling



German part of Waddenzee

How to cross the coastal marshlands

Hilgenrieder Watt



Trenchless Solutions:

Todays drilling technology enable us to drill over a length of 2.500 meters.

Factors to be considered:

- Soil conditions and type of drill rigs
- Local environment
- Pulling forces for power cables lengths
- Heat exposure inside PE pipes (potential hotspot for cable)
- Local conditions, such as space and equipment footprints

Open Trench Solutions

In areas where overhead cable solutions are not allowed the use of underground cabling can be considered !

Underground cables crossing overhead lines
using open trench solutions

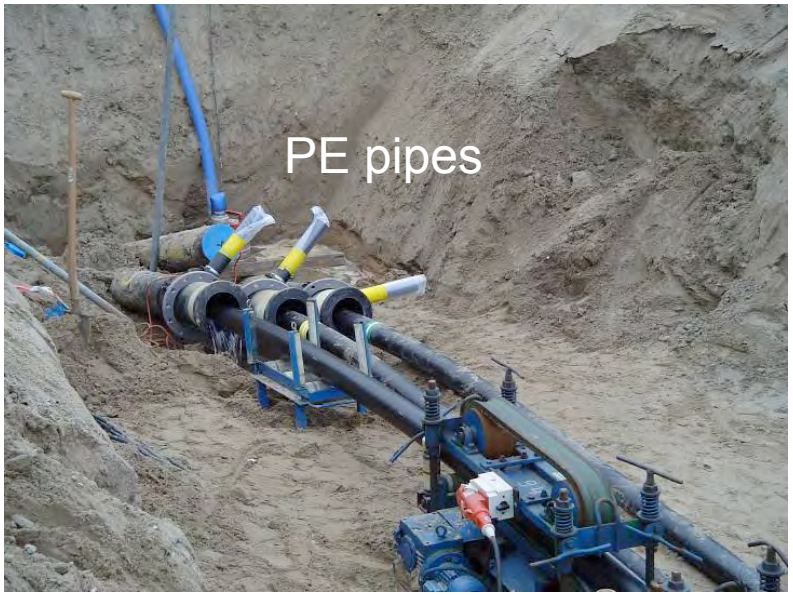
Open Trench Solutions

Using large trenches multiple cable systems can be installed such as AC (3 phase) and DC (dual) connections.

For heat limitations increased trench depths can be considered in combination with “cable sands” to reduce “heat exposure”.
Fibre optics to measure temperatures can be used

Trenchless Technologies E.W.I.P. UK

HDD

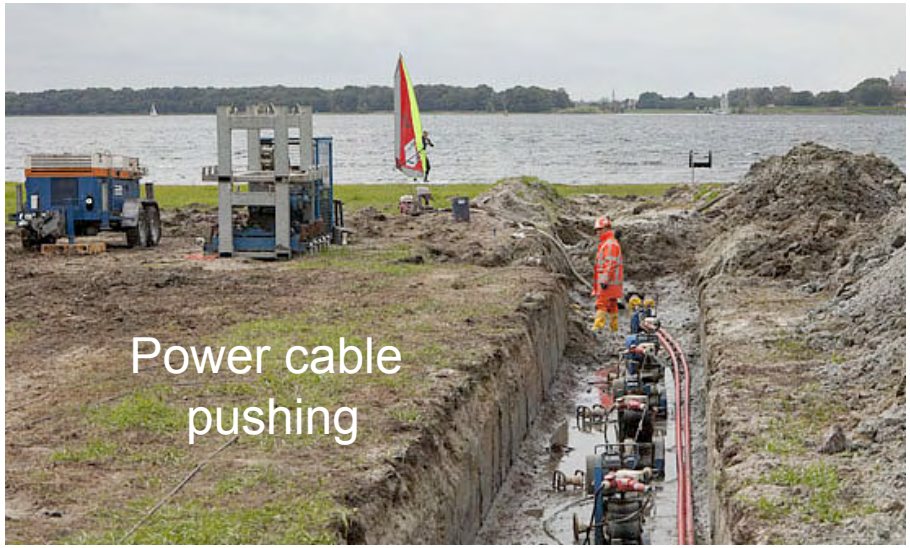


Cable pulling operations – lineair cable pulling devices

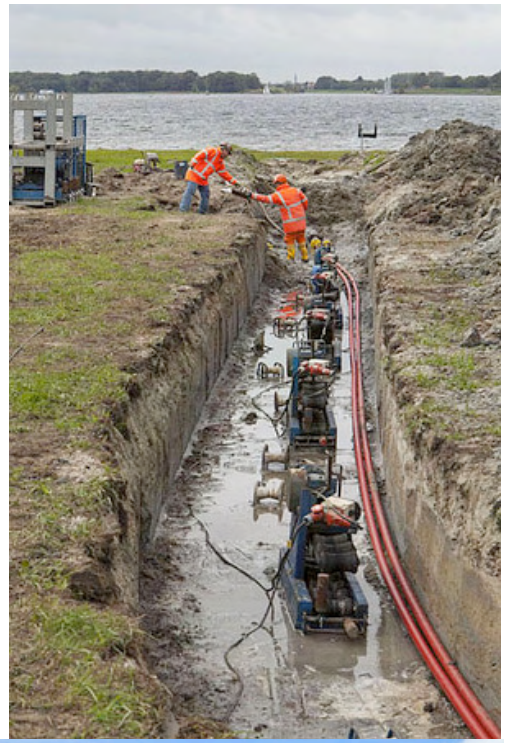
Veerse Meer (Holland) – 1.600m lake crossing

Challenges: Tourist area

Trenchless solution HDD + PE pipes



Limit environmental impact by using right equipment combined with clean work strategy.
Early contractors involvement and communications with stakeholders !



Open trenches (dry)

Some basic logisitcs


Undergound cable track,


job completed


Undergound cable track,
22 7 2010


job completed

Installation activities always cause some impact on environment. Our objective is minimise and where necessary to re-instate !

Cables can be either installed using pre-installed ducts or directly in the trench ?

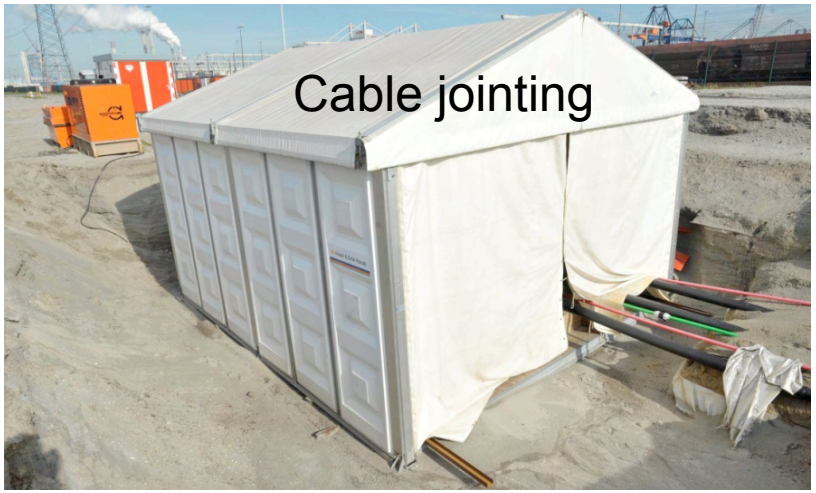
Local conditions and circumstances dictate this solution.
In open trenches we use cable sand or surrounding soils for cooling. In ducts we use special grout or bentonite (mud) to cool cables.

Open trenches in complex urban areas !

Install ducts first then install/pull power cables
Ducts are usual grouted to cool power cable


Cable reels storage yard


Cable pull in highway shoulder
Through pre-installed ducts


Cable jointing

Logistics:

- Road access, size and weight restrictions
- Pulling force restrictions for cables
- Jointing locations
- Environmental considerations
- Urban areas – work restrictions
- Personnal Health & Safety


Harmony ?
Any Questions ?
Contacts:
info@vsmc.nl
info@vshanab.nl
Thanks for your attention