

# Operation and maintenance of submarine power cables

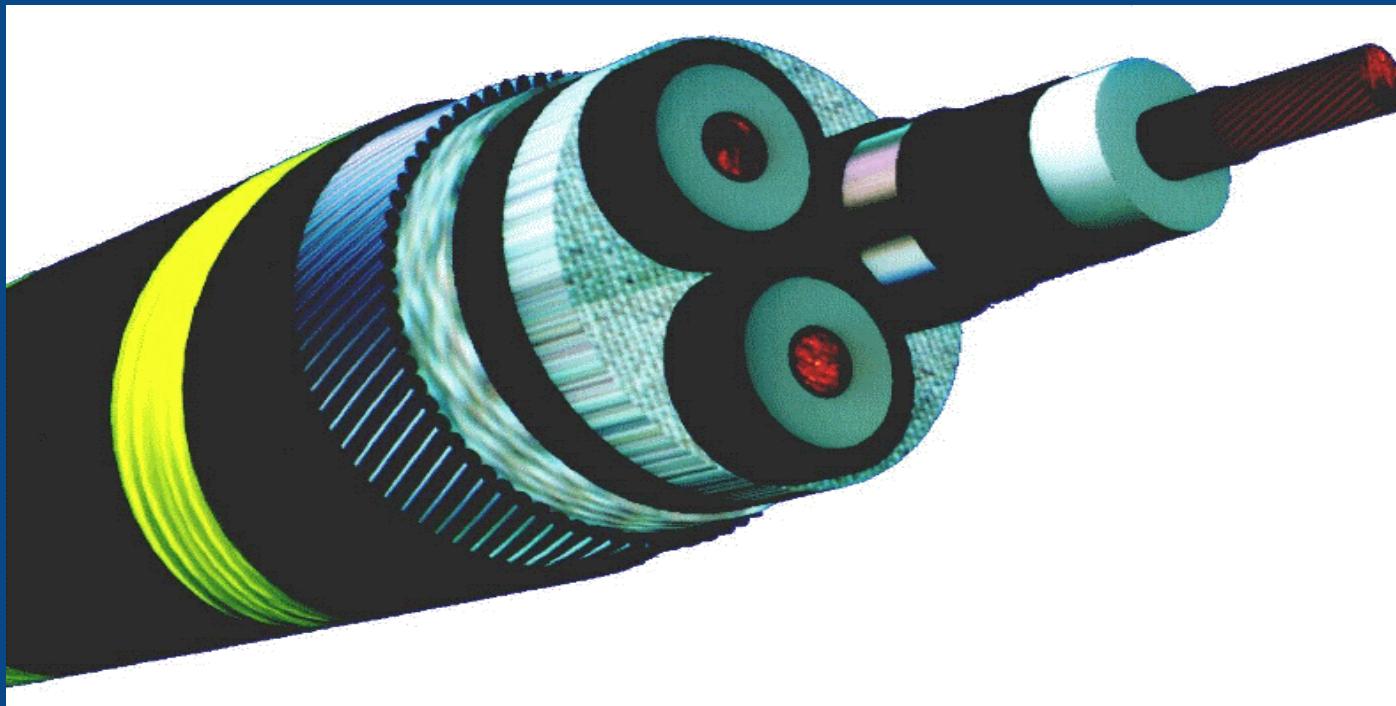
**Maurice Smith**

**Representing ESBI**

# Submarine power cables

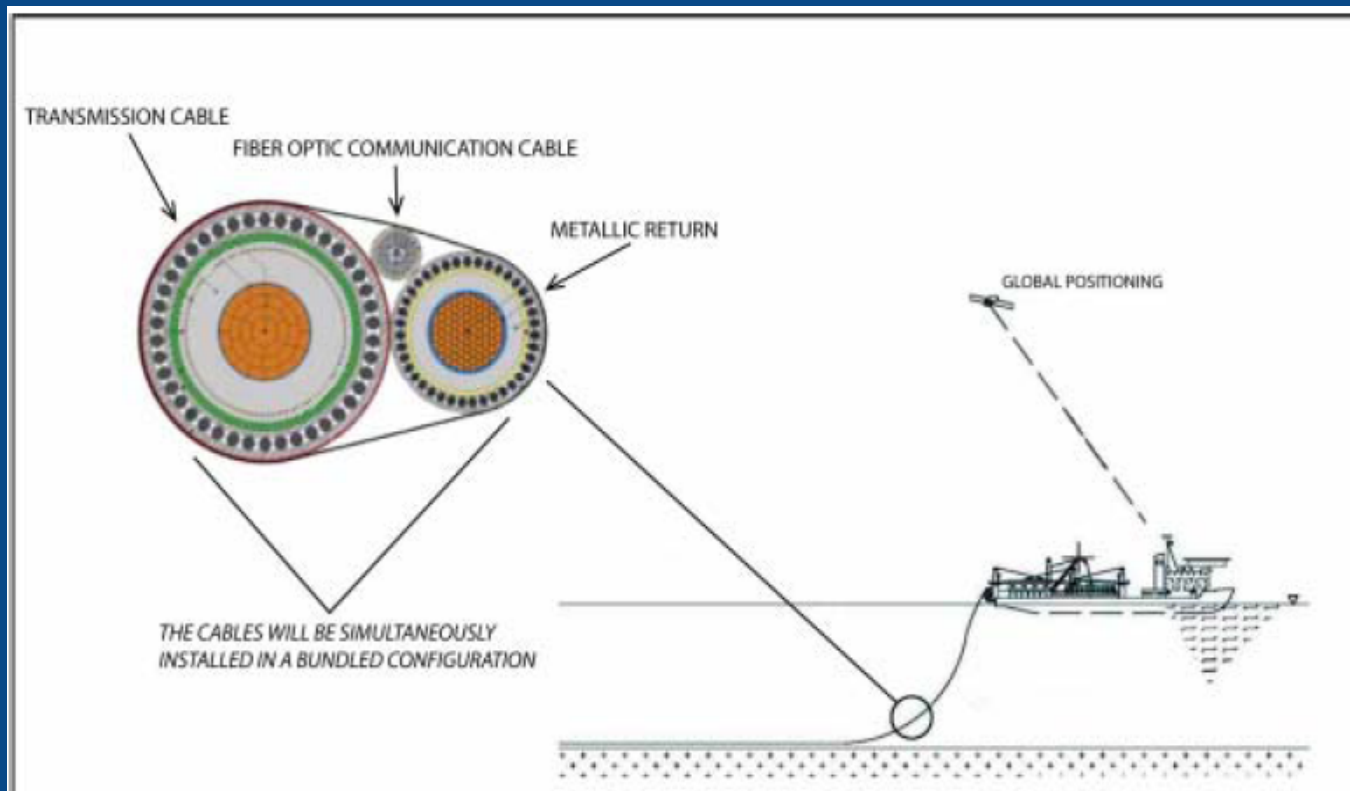
- Transmission of power
  - AC interconnection
  - DC interconnection
  - Connection of offshore renewables (AC or DC)
  
- Critical infrastructure

## Submarine power cables



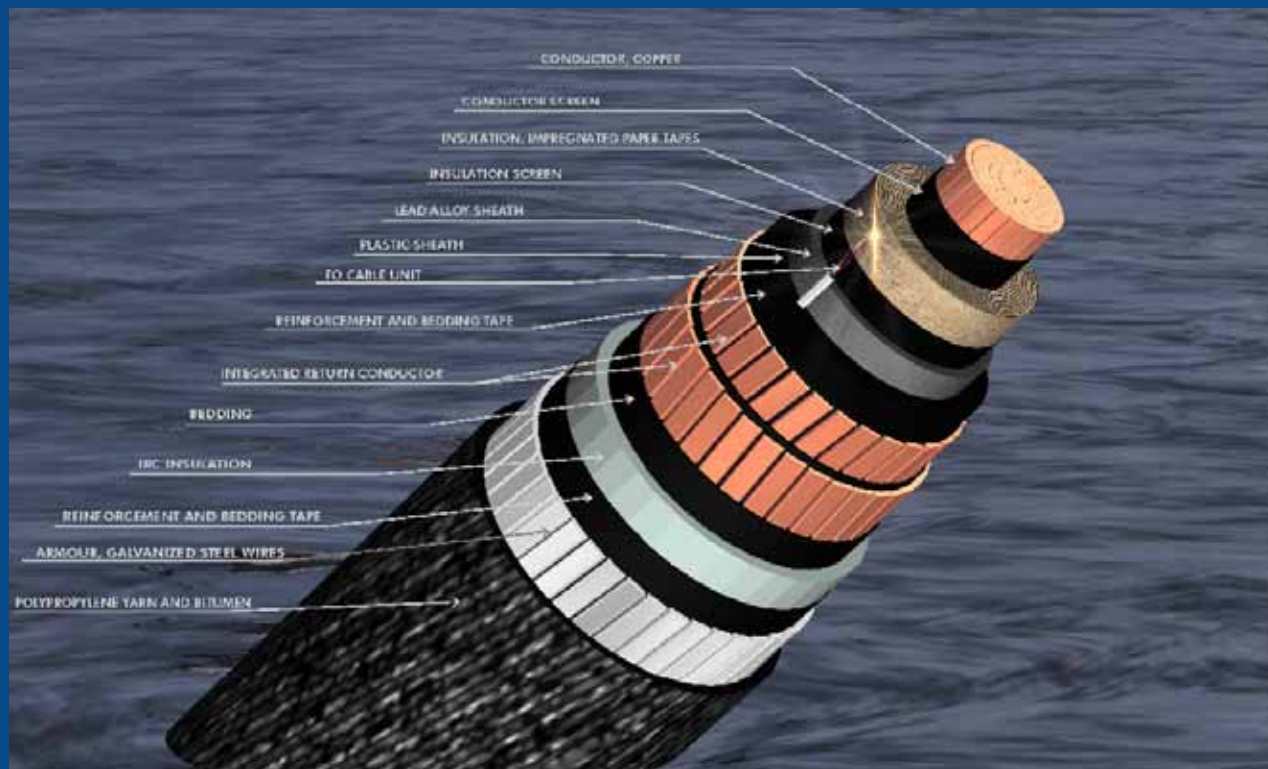
3 Core 90kV 300mm<sup>2</sup> Copper  
Conductor, XLPE Installation,  
Lead Sheath, SWA, Submarine Cable

# Submarine power cables



**Bundled DC Cable configuration**

# Submarine power cables



DC cable configuration with integrated return and FO

# Submarine power cables

## ➤ Initial experiences

### ■ Internal

- Route planning
- Risk analysis
- Cable design

### ■ External

- Consents
- Other stakeholders and users of the sea

# Submarine power cables

## ➤ Protection of cables

- Third party impact
- Effect of current and seabed movements

# Submarine power cables



# Submarine power cables



# Submarine power cables



# Submarine power cables



# Submarine power cables



# Submarine power cables

## ➤ Maintenance

- Routine survey
  - Depth of burial
  - Integrity of external protection
  - Video surveillance
  - Frequency dependent on trending

## ➤ Monitoring

- Web based monitoring
  - Rule based alarms

## Submarine power cables

### ➤ What happens when the lights go out?

- Fault location – basic requirements
  - Accurate charts
  - Fault location methodologies
  - Cable design details
- Cable isolation
- Cable and accessory spares
- Repair response agreement with OEM

# Operation and maintenance of submarine power cables

- Start early
- Seek facilitators
- Protect and maintain
- Prepare for faults

**Maurice Smith**  
**Representing ESBI**

**[maurice.smith@powerteam.eu.com](mailto:maurice.smith@powerteam.eu.com)**