



**KINETRICS**

# High Voltage Direct Current Testing & Commissioning

Avoid Delays & Failure of Your Assets





Our HVDC system is the **largest of its kind** & has a **DC voltage of 1200kV** that is easily transportable in containerised solutions

## Why Us?

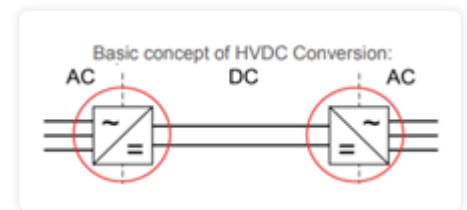
- ✓ Rapid charge & discharge for cable systems up to 750km in length
  - Helps to avoid exposing cable systems to prolonged overvoltage (less than 60 minutes)
- ✓ Ideal for end-to-end commissioning testing of newly laid HVDC cables & maintenance
  - Supports your asset reliability & provides operational assurance

## Overview: Mobile HVDC Test System 1200 kV - Type PGR 1200

Kinectrics supports the transition towards decarbonisation in high voltage transmission engineering and High Voltage Direct Current (HVDC) technology offers one of the the most efficient means of transmitting large amounts of power over long distances, parrallel to supporting the transmission and distribution of renewable power on the Grid.

HVDC systems are a key technology for the development of the future electric power transmission networks. They serve three functions to:

- 1 Interconnect countries or islands separated by water
- 2 Connect remote offshore platforms to main transmission grids
- 3 Transmit energy over long distances



## HVDC (Commissioning) testing applies to the following applications:

### Converter stations

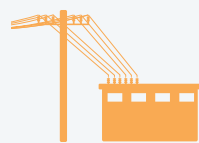


Offshore

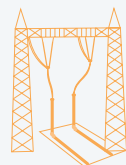


Onshore

### Transition stations



From overhead line to cable



From overhead line to gas-insulated line (GIL)



From gas-insulated line (GIL) to cable

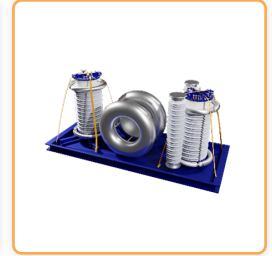


From cable to cable

## Technical Abilities: Our Solution

### Mobile HVDC Test Set

- Cascaded up to 1200kV
- Standard Current / Duty Cycle
  - ✓ **For 2s configuration**
    - 100 mA – up to 400 kV (max. 3 hours)
    - 75 mA – up to 600 kV (max. 6 hours)
    - 40 mA - up to 720 kV (max. 3 hours)
    - 20 mA - up to 800 kV (continuous)
  - ✓ **For 3s configuration**
    - 20 mA - up to 1150 kV (max. 6 hours)
    - 10 mA - up to 1200 kV (continuous)
- Polarity: Reversible via motorized switch
- Special developed discharge unit for fast discharging of high capacitive test objects (such as Cables)
- Testing according valid IEC, IEEE and CIGRE standards



## Turnkey Testing Capabilities for AC & DC Cable Systems

### High Voltage Testing

- AC or DC testing for cables with extruded insulation (XLPE, EPR)
- AC or DC testing for fluid filled cables (PILC, LPFF, HPFF)
- Partial Discharge (PD) Measurement
- And, any other high voltage apparatus

### Low Voltage Testing

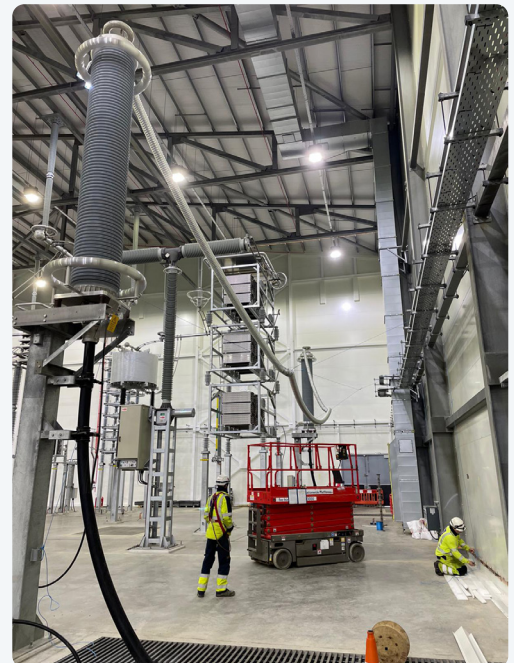
- Dielectric Spectroscopy (DS)
- Time Domain Reflectometry (TDR)
- Optical Time Domain Reflectometry (OTDR)
- Line Impedance Resonance Analysis (LIRA/FDR)
- DC Sheath Resistance Measurement
- Jacket Integrity Test
- Contact Resistance Test

### System Testing

- Sheath Voltage Limiter (SVL) Testing
- Bonding Performance (Induced Voltage Measurement)
- Positive & Zero Sequence Impedance Measurement
- Capacitance Measurement
- DTS & Thermal Rating (Ampacity) Calculations & Verification

### Failure Analysis

- Forensic services, including chemical & mechanical analysis
- Numeric modeling of accessories (thermal & mechanical)
- System Studies (Lightning & Switching Impulse, AC/DC)





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