

## Breakout: Seafloor Power Distribution & Control

### Objectives:

- Identify 5 topics for research & test facilities
- Target a white paper articulating the 5 research priorities

#### What are application needs & challenges?

- Define problem to solve
- Existing solutions
- Technology gap
  - power level/load type
  - distance & depth
  - technology choices, pros & cons (AC, DC, Low freq AC...)

#### What are research topics to address application needs?

- Technology areas
- Technology ideas
  - system architecture
  - circuits & components
  - control
  - packaging
  - interconnect
  - protection
  - ...

#### How do we measure success?

- Performance metrics
- Performance target
- Validation approach & test facility
- ...

## Breakout: Seafloor Power Distribution & Control

Time: 1.5 hours

- Volunteered presentations
- Brainstorm
- Prioritize
- Follow up actions
- Report out

## **Research Areas**

- Power generation
- Power transmission & distribution
- Subsea drive
- Control

## **Topics Power Transmission & Distribution**

### **Gaps:**

- Reliability
- Cost

### **Research Topics**

- HV wet-matable connectors >36 kV; 500-1000A
- System architecture
  - AC, DC, LF AC, MV DC (distance, power level...)
  - electric v.s. hydraulic
- Simulation tool and test facility to help to validate and select architecture
- DC system protection, e.g. switchgear...

## **Topics for Subsea Drive**

### **Gaps:**

- Reliability
- Cost & cost for failure

### **Research Topics**

- Establish reliability performance in subsea environment thru risk reduction, e.g. testing (HALT?)
- Fault tolerant solution
- Lower cost solution
- Hydraulic torque converter & drive train

## **Topics for Control**

### Gaps:

- Reliability

### Research Topics

- Full scale system simulator & testbed
- Redundancy
- Data monitoring