

Paris Session 2022



cigre
For power system expertise

Real-time simulation facility for the Johan Sverdrup Phase2 project

SC B4

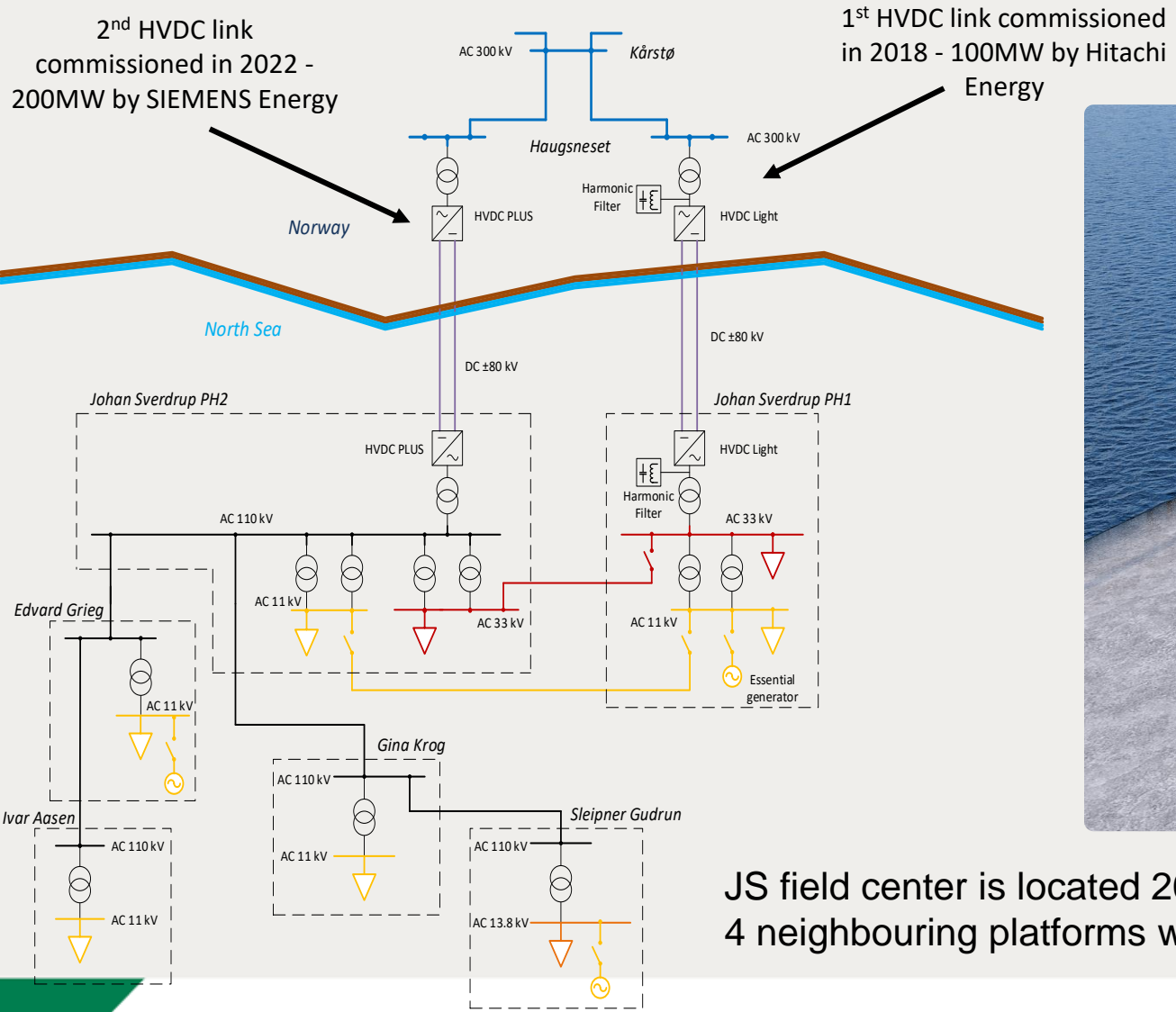
PS1/Q1.13

P.RAULT (France)



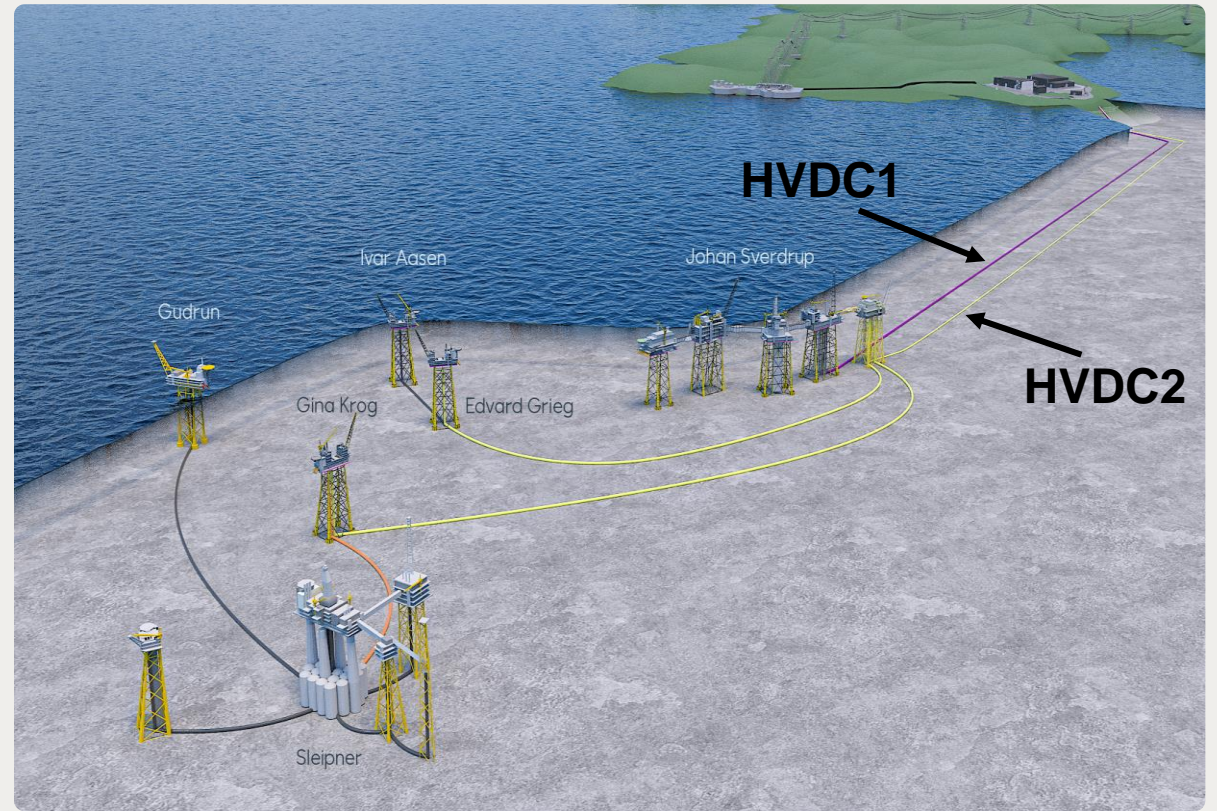
First multi vendor offshore HVDC scheme

Johan Sverdrup project



2nd HVDC link
commissioned in 2022 -
200MW by SIEMENS Energy

1st HVDC link commissioned
in 2018 - 100MW by Hitachi
Energy



JS field center is located 200km from west coast of Norway
4 neighbouring platforms will be connected to JS via long 110kV subsea cables

EMT studies to ensure secure power supply

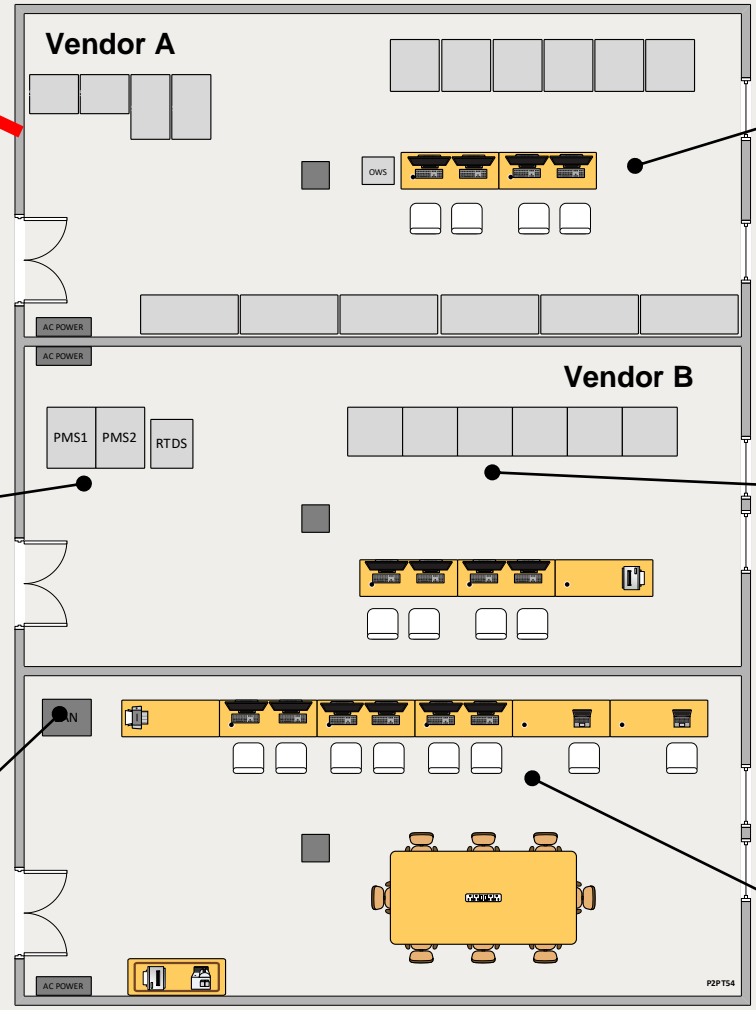
Lab layout for the Johan Sverdrup project



PMS

RTDS + SyncRelay

Remote access for HVDC OEM



HVDC1 C&P replica



HVDC2 C&P replica



Control room

Time schedule and milestones

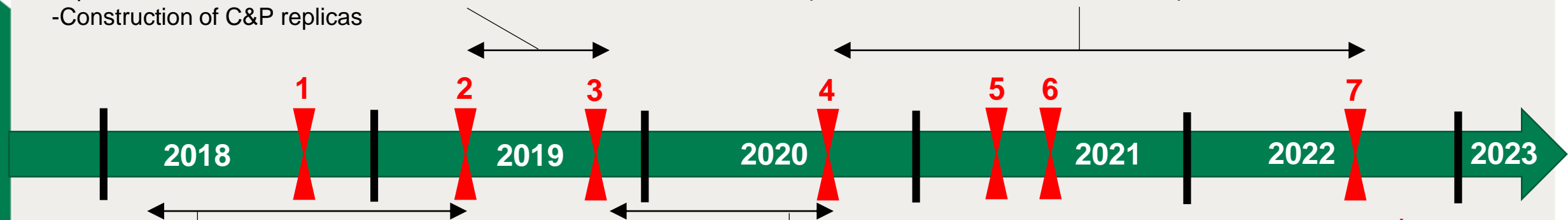
Parallel operation studies

- 1: Final specs for Power Sharing and secondary ctrl
- 2: First project specific offline model for HVDC2
- 3: Delivery of the first C&P replica (PMS)

- 4: Start of official parallel operation tests with C&P replicas
- 5: Dynamic performances in parallel operation are satisfactory
- 6: Lab relocation
- 7: **Start of parallel operation on site**

-EMT offline simulations with project specific models
-Update of C&P offline models for both HVDCs
-Construction of C&P replicas

-EMT offline and RT simulations with BB models and replicas
-Update of C&P offline models and replicas software for both HVDCs



-Specifications of PMS
-Specifications of BB models and interfaces
-Specifications of C&P replicas
-EMT offline simulations with preliminary models



-EMT offline simulations with project specific models
-Update of C&P offline models for both HVDCs
-C&P replicas commissioning

July 2nd 2022

