

Samy Akkari

Freelance HVDC Consultant



Areas of Expertise

High Voltage Direct Current
Voltage Source Converter
Modular Multilevel Converter
HVDC System Design
HVDC Commissioning
HVDC O&M
HVDC Offshore Platforms
HVDC Valve Type Testing
HVDC C&P System
HVDC C&P Replica
Real-Time Simulation
C&P Cyber-Security
Valve Cooling System
Valve Climate System
RAM, FMECA and RCM

summary

- **Education:** PhD in HVDC systems and engineering degree from French "Grandes Écoles"
- **Experience:** 12 years of hands-on experience in the field of HVDC systems.
- **Professional Roles:**
 - HVDC System Design, Control and Grid Integration Lead for TenneT.
 - Principal HVDC Asset Manager for RTE.
 - Principal O&M Engineer for the INELFE B-SL Project
 - Commissioning Engineer for the IFA2 Project.
 - Specification writing, tendering, design and type testing of Celtic Interconnector, Biscay Gulf, and all Centre Manche Offshore HVDC projects, serving as an HVDC valve and C&P expert, and HVDC maintenance specialist.

My skills and experience in HVDC systems, combined with my advanced degree and comprehensive roles in operational positions, make me a valuable asset in the field.

experience

- Since 2024 **Freelance HVDC Consultant and CEO of HVDC Connect** HVDC CONNECT
Project Delivery, O&M, Technical Expertise for Onshore & Offshore HVDC Projects
- **HVDC System Design, Control and Grid Integration Lead for TenneT** - I am leading the design, control, and grid integration of the 5 bipoles from **GE vernova** in TenneT 2GW program including the validation of new VSC valve technologies and control and protection systems.
 - **STATCOM specification package** - Wrote the complete technical specification package for 4 STATCOMs for the PIRECT project (Interconnection project between Cameroon and Tchad).
 - **HVDC O&M Philosophy** - Assisted InvEnergy in defining their O&M philosophy for the Grain Belt Express project.
 - **HVDC RAM Study** - Conducted a comprehensive critical review and comparative analysis of multiple HVDC RAM studies for AKER, providing detailed feedback and identifying key areas for clarification and improvement.
 - **HVDC Training** - Provided comprehensive training on HVDC equipment, project delivery and O&M to Total Energy.
- 2016-2024 **Senior HVDC Expert** RÉSEAU DE TRANSPORT D'ÉLECTRICITÉ (RTE)
National Centre for Grid Expertise, Power Electronics Assets Team
- **O&M Engineer** - Led operations and maintenance (O&M) strategy for the Baixas HVDC converter station (**INELFE B-SL, Siemens Energy** Project), ensuring over 98.5% availability over an 8-year period.
 - **Commissioning Engineer** - Commissioned the **IFA2, Hitachi Energy** Project, including successful execution of type testing, factory acceptance testing (FST/DPT), and on-site commissioning.
 - **HVDC Asset Manager** - Developed and managed maintenance policies and budgets for all RTE's HVDC links.
 - **HVDC Expert** - Leveraged extensive experience in tender specifications, tender evaluation, design, construction, type testing, FPT/DPT, and commissioning to contribute to ongoing projects like **France-Italy Link (GE vernova)**, **Celtic Interconnector (Siemens Energy)**, **Biscay Gulf (Hitachi Energy)**, and all three **Centre Manche (Hitachi Energy)** Offshore HVDC projects.
- 2013-2016 **PhD Candidate** GEEPs (CENTRALESUPÉLEC) & L2EP (CENTRALE LILLE)
Control and stability of a multi-terminal HVDC (MTDC) system and study of interactions between AC networks and the MTDC grid.
- **Management** of a 3-year project in 2 laboratories: **modeling**, using EMTP-RV and Matlab, of a VSC-MMC type MTDC network. **Analysis** of the interaction of the HVDC grid with interconnected AC networks.

Contact Information

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Languages

French (mother tongue)
English (fluent)

Programming

Simatic-TDC, HiDraw,
Matlab, Simulink,
EMTP, Hypersim,
LaTeX, Microsoft Office

Miscellaneous

Driving license

education

2013–2016	PhD Thesis in Electrical engineering <i>Control and stability of a multi-terminal HVDC (MTDC) system and study of interactions between AC networks and the MTDC grid.</i>	CENTRALESUPÉLEC, GIF-SUR-YVETTE
2013	Master Degree - REST <i>Renewable Energy, Science & Technology.</i> Study of electrical networks (management, optimization...), renewable production technologies (solar, wind, hydro...), Project management.	ÉCOLE POLYTECHNIQUE PARISTECH
2013	Engineering Degree Engineer in Electrical Engineering. Title of "Ingénieur Normalien Agrégé".	ÉCOLE NORMALE SUPÉRIEURE
2011–2012	French Agrégation in Electrical Engineering Rank: 3rd.	ÉCOLE NORMALE SUPÉRIEURE

portfolio



INELFE, VSC-MMC

2x1000 MW, ± 320 KV

Siemens Energy

Role: Principal O&M Manager for RTE

Summary:

- Achieved over 98.5% total availability over 8 years of operation.
- Implemented preventive and predictive maintenance practices.
- Managed maintenance activities.
- Performed expert-level maintenance tasks (corrective and preventive).
- Managed the relationship with the manufacturer (Siemens Energy) for the EPC contract and the LTSA contract (supervision and maintenance).
- Managed and maintained the C&P replica of this project in RTE's real-time simulation laboratory.



IFA2, VSC Gen4

1000 MW, ± 320 KV

Hitachi Energy

Role: Owner Engineer / Commissioning Engineer for RTE

Summary:

- Participated in and validated the project's converter station design review.
- Participated in the execution phase of the project.
- Participated in and validated the FPT/DPT of the project.
- Participated in the FPT/DPT, and commissioning of the C&P replica system.
- Participated in and validated the pre-commissioning and commissioning phases of the project.
- Participation in annual outages since commissioning as HVDC expert.



TenneT 2GW Program, Offshore

5x2000 MW, ± 525 kV

GE Vernova

Role: System Design Sub Project Lead for TenneT

Summary:

- Participation, review and validation of HVDC system design and Grid Integration at program level, portfolio level and project level.
- Participation and validation of the type testing of the new generation of VSC valves (dielectric and operational type testing).
- Review and validation of the new generation of HVDC C&P hardware and architecture.
- Management, review and validation of the new generation of HVDC C&P software (eLumina) and functionalities development for bipole topology.



Celtic Interconnector

700 MW, ± 320 KV

Siemens Energy

Role: Owner Engineer for RTE

Summary:

- Wrote the HVDC-VSC specification under the EPC contract.
- Wrote the "Maintenance in Design" specification under the EPC contract.
- Wrote the "Maintenance Services" specification under the LTSA contract.
- Evaluated bidders in the tender process on the basis of their technical proposals.
- Assisted the Purchasing teams with the prices quoted by bidders in the tenders and the contractual and financial clauses associated with the LTSA contract.
- Conducted final negotiations with the "preferred bidder" to define the content of expected maintenance services and associated contractual obligations.
- Participated in and validated the projects' converter station design review.
- Participated in and validated the type testing of the VSC valves (dielectric and operational type testing).



Biscay Gulf, VSC Gen5

2x1000 MW, ± 400 KV

Hitachi Energy

Role: Owner Engineer for RTE

Summary:

- Wrote the HVDC-VSC specification under the EPC contract.
- Wrote the "Maintenance in Design" specification under the EPC contract.
- Wrote the "Maintenance Services" specification under the LTSA contract.
- Evaluated bidders in the tender process on the basis of their technical proposals.
- Assisted the Purchasing teams with the prices quoted by bidders in the tenders and the contractual and financial clauses associated with the LTSA contract.
- Conducted final negotiations with the "preferred bidder" to define the content of expected maintenance services and associated contractual obligations.
- Participated in and validated the projects' converter station design review.



Centre Manche, Offshore

3x1250 MW, ± 320 KV

Hitachi Energy

Role: Owner Engineer for RTE

Summary:

- Wrote the HVDC-VSC specification under the EPC contract.
- Wrote the "Maintenance in Design" specification under the EPC contract (for both onshore and offshore converter stations).
- Wrote the "Maintenance Services" specification under the LTSA contract (for both onshore and offshore converter stations).
- Evaluated bidders in the tender process on the basis of their technical proposals.
- Assisted the Purchasing teams with the prices quoted by bidders in the tenders and the contractual and financial clauses associated with the LTSA contract.
- Conducted final negotiations with the "preferred bidder" to define the content of expected maintenance services and associated contractual obligations.



Principal asset manager for all of RTE's HVDC links

- Development of the maintenance strategy for RTE's HVDC assets.
- Lifecycle management of RTE's HVDC assets.
- Defined the national budget guidelines in relation to the OPEX and CAPEX maintenance budgets of each RTE HVDC station.
- Defended RTE's HVDC OPEX budget trajectories before the French Energy Regulatory Commission.



HVDC Trainer

- Provided training services for HVDC projects and O&M of HVDC converter stations for Total Energies.
- Provided training services under RTE-international as Principal HVDC O&M Engineer.
- Provided asset management training under RTE-international as Principal Asset Manager for RTE HVDC interconnectors.



France-Italy Link, VSC Gen1

2x600 MW, ± 320 KV

GE Vernova

Role: HVDC Expert

Summary:

- Contributed to the design phase of the project.
- Participated in and validated the type testing of the VSC valves (dielectric and operational type testing).
- Provided expert guidance on various defects identified during commissioning.