GCC POWER 2022

14th - 16th November 2022

[20th - 22nd Rabi Al-Thani, 1444]

Faisaliah Hotel, Riyadh, Saudi Arabia

Conference Program

Time based on UTC + 3 (Riyadh local time)

Day 1:	Monday 14th November 2022 [20th Rabi-Al-Thani 1444]
Conference Registration & Reception	7:00 - 09:00
Opening Ceremony:	**09:00 – 10:00**
- Welcome statement and Holy Quran	09:00 - 09:05
- Ministry of Energy Address	09:05 - 09:15
- GCC Secretary General Address	09:15 - 09:20
- GCC Cigre Address: H.E. Board Chairman	09:20 - 09:30
- Cigre Address: H.E. Cigre Secretary General	09:30 - 09:35
- GCC Cigre short video	09:35 - 09:40
- Main sponsors Address & Honoring	09:40 - 10:00

Day 1:	Monday 14th November 2022 [20th Rabi-Al-Thani 1444]
10:00 – 11:00	Exhibition Inauguration & Coffee break
11:00 – 12:15	KEYNOTE PANEL SESSION **Challenges in the GCC Power Systems under Energy Transition** Moderator: Dr. Lawrence Jones - Vice President, EEI Co-Moderator: Ahmed Ali Al-Ebrahim – CEO, GCC Interconnection Authority Panelists: - ***Wilfried Breuer- Chairman of Cigre NC Germany – Managing Director MR, Germany*** - ***Eng. Ibrahim Al-Jarbou – SEC, Saudi Arabia*** - ***Dr. Salem Al-Huthaili – CEO - Solar Wadi, Sultanate of Oman***
12:15 – 13:00	BREAK & PRAYER -showcase by GE Renewable Energy

Day 1:	Monday 14th November 2022 [20th Rabi-Al-Thani 1444]

	TRACK – A		TRACK - B
13:00 – 14:30	Session A1: Renewable Energy And Nuclear Power For The Gulf States Chaired by: Eng. Sanaa Al-Ghareeb Co-Chaired by: Eng. Mohamed Al Muaili		Tutorial 1/1: SC B3 Tutorial: Management of Risk in Substations Chaired by: Eng. Abdulrahman Mohammed Ahli Speaker: Eng. Gérald Buchs
	A101	**The Implications of Integrating Large-Scale Solar PV into a Network Supplied by a Major Nuclear Power Plant.** *By: Dr. Abdulrahman Almerbati, KFUPM (Saudi Arabia)*	The management of risk has become an increasingly important concern at the corporate level in recent years. Attitudes in society have often changed since the creation of the original installation. Continuity and high quality of supply are all demanded and expected in this more technological age. Circumstances surrounding the original installations probably will have changed; infrastructure in the substation locality may affect the implementation of future works, not envisaged at the time of the original installation. Consideration of safety, not deemed necessary in the past, are mandatory in today's society. The objective of the established WG B3.38 was to investigate the risk management approach and the experiences of utilities associated with the management of risks in substations. The working group reviewed the feedback and experience from utilities in terms of
	A102	**Potentials of Pumped Hydropower Storage Technology in GCC : Case of Dayqah Dam in Oman.** *By: Eng. Idis Al Siyabi, Petroleum Development Oman (Oman)*	
	A103	**A Hybrid Artificial Intelligence based Approach for Solar Power Forecast.** *By: Eng. Hyder Abdallah, Dubai Electricity and Water Authority (United Arab Emirates)*	
	A104	**Virtual power plant for large-scale PV systems grid integration for grid code compliance.**	

	TRACK – A		TRACK - B
		By: Eng. Mohammed Alghamdi, Gulf Renewable Energy Lab (GCCLAB) (Saudi Arabia)	Operation, Maintenance and Dis-mantling with a focus on extension and modification of existing substations. This Tutorial describes what is commonly referred to as Enterprise Risk Management (ERM) and is provided as a guide and a tool for businesses of all types to assist in managing the risks of impacts associated with their business activities.
	A105	**Detailed Study on Geo Thermal Energy by Considering Environmental and Economic Aspects.** By: Eng. Mohamed Ershad Abdulmansoor, DEWA (United Arab Emirates)	
	Q&A		
14:30 – 15:30	Lunch & Asar Prayer		

Day 2: Tuesday 15th November 2022 [21st Rabi-Al-Thani 1444]

08:00 – 09:00	Registration & Coffee

	TRACK – A		TRACK - B	
09:00 – 10:30	Session A2: System Operation & Control Chaired by: Eng. Hashim Al-Zahrani Co-Chaired by: Eng. Ahmad Al-Zahrani		Session B2: Transformer Design, Manufacturing, Life Cycle and Performance Chaired by: Eng. Fahad Al-Zahrani	
	A201	**Inertia Monitoring and Calculation on the Interconnected GCC Grid.** By: Eng. Ahmed ALJaafari, GCCIA (Saudi Arabia)	B201	**Reliability enhancement through machine learning combined with advanced digital methods for the performance evaluation of transformers and reactors.** By: Dr. Karsten Viereck, Maschinenfabrik Reinhausen GmbH (Germany)
	A202	**Solving Optimal Power Flow Utilizing Advanced Artificial Intelligent Algorithms.** By: Eng. Abdel Rahman Naser Alheyasat, NEPCO (Jordan)	B202	**Implementation and Experimental Analysis of Finding Partial Discharge Source between a Transformer and its Peripheral High Voltage Devices using Several Heterogeneous PD Sensors.** By: Eng. Mahmoud Zain, APM Technologies, Inc. (South Korea)
	A203	**The Deployment of an IP/MPLS Wide Area Network by Kahramaa.** By: Eng. Maha Al-naimi, Kahramaa (Qatar)	B203	**Temperature Rise Test Capabilities of GCC Electrical Testing Laboratory.** By: Eng. Rayan Dessuky, GCC Electrical Power Laboratory (Saudi Arabia)
	A204	**Developing spinning reserve allocation criteria in GCCIA.** By: Eng. Bandar Almarri, GCCIA (Saudi Arabia)	B204	**Technical Assessment of Transformer And Bushing Insulation Using Dielectric Dissipation Factor at Frequencies between 1 and 500 Hz**. By: Eng. Diego Robalino, Megger (Bahrain)
	A205	**A comprehensive analytical study to examine the stability of the electricity network under fault conditions.** By: Dr. Ahmed Taha, Emirates Water & electricity Company (EWEC) (United Arab Emirates)	B205	**Effects of Ungrounding Primary side of YNyn0 Power Transformers.** By: Eng. Mubarak Hassan Mubarak Suliman, Saudi Electricity Company (Saudi Arabia)
			B206	**The limitations of arc detection using semiconductive light sensing elements inside the transformer tank .** By: Eng. Mahmoud Moh'd, Schering Institute (Germany)
	Q&A		Q&A	

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	TRACK – A	TRACK - B
10:30 – 11:30	WIE- Women in Energy Moderator: Dr. Abeer Al-Maimouni Kuwait University	NGN Presentation Moderator: Dr. Chokri Belhaj, Al Asalah University, KSA
10:30 – 11:30	POSTER SESSION-1, Product Showcase	
11:30 – 12:30	GCC CIGRE **General Assembly** Meeting Break for Exhibition Visit, POSTER SESSION-2, Product Showcase & Zohar Prayer	

	TRACK – A		TRACK - B	
12:30 -14:00	Session A3: System Development & Economics Chaired by: Eng. _Raed Abdul Rahman Al Harthi Co-Chaired by: Eng. Fahad Al-Zahrani		Session B3: Substations, Switchgear and HV Equipment Chaired by: Eng. Kamel Al-Shehabi Co-Chaired by: Eng. Abdulrhman Ahli	
	A301	**The Long Term Resilience Evaluation of Saudi Electricity Transmission System.** *By: Eng. Abdullah Saeed Al-Shehri, National Grid-SA (Saudi Arabia)*	**B301**	**Introducing High Voltage Tapping Grid Station Scheme for Connecting Rural Areas in Oman.** *By: Eng. Amjed Al Rumeidhi, Oman Electricity Transmission Company (Oman)*
	A302	**Role of the National-Scale Electricity Transmission Network in Achieving the High Proportion of New Energy Consumption, Enhancing Energy Efficiency and Regional Interconnection in the Sultanate of Oman.** *By: Eng. Hisham Al Riyami, Oman Transmission Electricity Company (Oman)*	**B302**	**Long-term behaviour of C4-FN mixtures in high-voltage equipment.** *By: Eng. Thomas Berteloot, GE's Grid Solutions (France)*
	A303	**Global interconnections for a sustainable electricity system - Results of the CIGRE C1.44 WG.** *By: Eng. Nicolas Chamollet, EDF (France)*	**B303**	**Innovative SF6 Leakage Sealing Technology for GIS & Circuit Breaker.** *By: Eng. Saleh K. AlDosari, National Grid Saudi Arabia (Saudi Arabia)*
	A304	**Fault Current Limiters.** *By: Eng. Yousuf Ahmed Saleh Al-Hammadi, Oman Electricity Transmission Company (Oman)*	**B304**	**Impact of transformer's cable on its primary & secondary side circuit breaker TRV & RRRV values for a HV substation.** *By: Eng. Uma Shanker Maheedhar Patnala, DAR International for Engineering Consultancy (Saudi Arabia)*
	A305	**Experimental investigation of the relationship between electric power generation and ambient temperature in SEPCO power plant.** *By: Eng. Abdallah Mohammad Ali Alhayajneh, Samra Electrical Power Company(SEPCO) (Jordan)*	**B305**	**High Voltage on Site Commisioning Tests For Gas Insulated Switcthgear.** *By: Eng. Nageshwar Rao Burjupati, GCC Electrical Power Lab (India)*
	Q&A		Q&A	

	TRACK – A		TRACK - B	
	Session A4: Electricity Markets and Regulation Chaired by: Dr. Nasser AL-Shahrani Co-Chaired by: Dr. Mohamed AL-Hamad		Session B4: Substation Protection and Automation Chaired by: Eng. Haifaa AL-Mteiri Co-Chaired by: Eng. Alaa Rahma	
14:00 – 15:30	**A401**	**Fast Frequency Control to Reduce Intermittent Behavior of Res Moving Toward Ancillary Services Market in GCC.** *By: Eng. Abdulrahman A. Al-Yamani, Aramco (Saudi Arabia)*	**B401**	**Catch the next dynamic wave: Overview and references of wide area monitoring systems and Remedial Action schemes (RAS) solution.** *By: Eng. Husam Ahmed, Schweitzer Engineering Laboratories (Bahrain)*
	A402	**Regulatory Assessment for Operation Integration between Regulated and Unregulated Transmission Networks in Oman Case Study.** *By: Eng. Ahmed Ali Salim Al-Nadabi, Oman Electricity Transmission Company (Oman)*	**B402**	**Bridging the gap between IEC61850 and legacy substations for distance protection.** *By: Eng. Eugenio Lucente, Hitachi Energy (Switzerland)*
	A403	**Role of Principal Buyer KSA as a host of PAEM Pilot Pricing Program in Pan Arab Electricity Market.** *By: Eng. Salman Mohammed Alowaifi, Saudi Power procurement Co (Saudi Arabia)*	**B403**	**Automated simulation study for protection coordination on transmission network.** *By: Eng. Fuad AlAmiri, Dubai Electricity and Water Authority (United Arab Emirates)*
	A404	**Short-term Electricity Markets - A Catalyst for the Integration of Renewables and Regional Markets in the GCC.** *By: Eng. Tarek Fawzy, Energy Exemplar (United Kingdom)*	**B404**	**Static Synchronous Compensator (STATCOM) Effects on Power Supply Reliability of Distribution Network Utilizing Long-Distance Submarine Cables.** *By: Eng. Abdulrahman Alsuhaibani, Aramco (Saudi Arabia)*
	Q&A		Q&A	
15:30 – 16:30	Lunch & Asar Prayer			
17:00 – 19:00	GCC Cigre Board of Directors meeting			

Day 3: Wednesday 16th November 2022 [22nd Rabi-Al-Thani 1444]

	TRACK - A		TRACK - B	
09:00 – 10:30	Session A5: Distribution Systems Chaired by: Eng. Abdulaziz AL-Shafai Co-Chaired by: Eng. Bader AL-Mamari		Session B5: Overhead Lines and Insulated Cables Chaired by: Eng. Aqeel AL-Awady Co-Chaired by: Eng. Fahad AL-Zahrani	
	A501	**Mazoon Electricity Company Experience in Business Continuity Management of Distribution Systems (Shaheen Cyclone Case).** *By: Eng. Mohammed Saif Ali Al-Wardi, Mazoon Electricity Company (Oman)*	B501	**Overview of the capability of pollution laboratories in GCC electrical testing laboratories.** *By: Eng. Abduallah Alqarni, GCC lab (Saudi Arabia)*
	A502	**Installation lightning protection systems in exist OHDLs not including protection.** *By: Eng. Khaled Shatwi, Saudi Electricity (Saudi Arabia)*	B502	**Reduce Bird strike impact on Electrical Overhead Lines Network.** *By: Eng. Khalid Ahmed Saleh Al Kindi, Petroleum Development Oman (Oman)*
	A503	**System restoration testing of communication-based distribution automation schemes.** *By: Eng. Mohamed Ali, OMICRON (Bahrain)*	B503	**Damped AC For Condition Assessment of HV Cables.** *By: Eng. Mohamed Alhayki, Megger Limited ME (Bahrain)*
	A504	**High ground resistance problem in soils with high resistivity.** *By: Eng. Pulak Pal, Petrokemya (Saudi Arabia)*	B504	**132kV Silicon Rubber Insulators failure issue during Khareef season at Dhofar region in Oman.** *By: Eng. Ali Mahad Al Mashani, Oman Electricity Transmission Company (Oman)*
	A505	**Smart inverters and grid support function in view of network stability and solar systems integration.** *By: Eng. Bara Mosa Zghool, Electricity Distribution Company (Jordan)*	B505	**A Field Analysis of New Overhead Line Conductor Coatings to Increase Ampacity/Reduce Power Losses in Desert Environment.** *By: Dr. Niall Coogan, Asset Cool, GCCIA & Midal Cable.*
	A506	**Hard and Soft Applications of Value Engineering Tool in The Electrical Distribution Activity.** *By: Eng. Mohammed Rafiq Tiro, Saudi Electricity Company (Saudi Arabia)*	B506	**Case Study of High Sheath Currents in High Voltage Cables.** *By: Eng. Sultan Fadhil Al Katiri, TRANSCO (United Arab Emirates)*
	Q&A		Q&A	
10:30 – 11:00	Break			

1 – 1	TRACK - A	TRACK - B

	Session A6: Smart Grids Chaired by: Eng. AbdulAziz A. Al Mutawa Co-Chaired by: Eng. Abdulaziz AL-Shafai		Session B6: Asset Management for Power Systems and HVDC and FACTS Technology Chaired by: Eng. Mohammed AL-Muaili Co-Chaired by: Eng. Abdullah AL-Ghamdi	
	A601	**Design a smart Under frequency load shedding (UFLS) scheme for Frequency stability improvement for Oman's Grid.** *By: Eng. Akhillas Rashid Nasser AlWaaili, Oman Electricity Transmission Company (Oman)*	B601	**Monitoring and diagnostic solutions for interconnection substations of renewable power plants. Monitored parameters and ROI for operators.** *By: Eng. Stefano Capodanno, Siemens Energy (Italy)*
	A602	**Real-Time Modeling - Simulation for investigating the Interaction PV, Micro Gas turbine and Battery Energy Storage in Microgrid.** *By: Dr Mohd Zamri Che Wanik, Qatar Environment and Energy Research Institute (Qatar)*	B602	**A Standardized Way to Monitor Power System Disturbances Using Modern IEDs and Communication Networks.** *By: Eng. Ammad Ali, Schweitzer Engineering Laboratories (United Arab Emirates)*
	A603	**Challenges of Renewable Smart Grid in Electrical Distribution Systems in Jordan: Case Study.** *By: Eng. Qutaibah Abdullah Mohammad Alha-hazaimeh, irbid district electricity company (Jordan)*	B603	**Metal Oxide Surge Arrester Failures and Condition Assessment.** *By: Eng. Alexandros Charalampidis, Aramco (Saudi Arabia)*
	A604	**Cyber Security Intrusion Detection for Station and Process Bus - Applications in Substations.** *By: Eng. Amro Mohamed, OMICRON Energy (Bahrain)*	B604	**High penetration of renewable energy - Challenges and impact on today's power grids with multilevel STATCOM and Grid Forming control.** *By: Eng. Mikael Halonen, Hitachi Energy (Sweden)*
	A605	**Smart Solar Inverter for Smart Grid.** *By: Eng. Asheesh Dhaneria, Electrical Research And Development Association (India)*	B605	**Kriegers Flak Combined Grid Solution Commissioning of the master controller and the HVDC system.** *By: Eng. Ying Jiang Hafner, Hitachi Energy (Sweden)*
	A606	**Agent Based Smart Power Grid.** *By: Eng. Hossam Abdelhafez, National Electric Power Co (NEPCO) (Jordan)*		
	Q&A		Q&A	
12:30 – 13:30	Break for Exhibition Visit , Poster Session 3, Product Showcase & Zohar Prayer			
13:30 – 14:30	CLOSING SESSION			
14:30 – 15:30	LUNCH BREAK & ASAR PRAYER			

Posters

Day 2: Tusday 15h November 2022 [21st Rabi-Al-Thani 1444]

First - Posters
Theme A1: Renewable Energy and Nuclear Power for the Gulf States
PPS01 - ***Intelligence Artificial Economic Load Dispatch of Interconnected System in Presence of Solar PV Plant and Wind Farm and their impact on Spinning Reserve .*** *By: Eng. Abdullah Al-Harbi, Saudi Electricity Company (Saudi Arabia)*
PPS02 **Sodium-ion battery: self-sustained grid energy storage for the GCC renewable energy integration.** *By: Eng. Vishal Vora, Electrical Research & Development Association (ERDA) (India)*
PPS03 - **Proposed Study toward achieving success of State-level Rooftop Solar PV Programs in Kuwait.** *By: Eng. Salem M Alajmi, College of Technological Studies PAAET (Kuwait)*
PPS04 - **Optimal Planning of Hybrid Energy System in Hasik Area, Oman.** *By: Eng. Abdullah Al Badi, Sultan Qaboos University (Oman)*
PPS05 - **PV Irradiance Effect on GCCIA Network & Way Forward.** *By: Eng. Jamshed Saleem, GCCIA (Saudi Arabia)*
PPS06 - **Rooftop Solar Photovoltaic in Saudi Arabia to Supply the Electricity Demand in Localised Urban Areas: A study for the city of Abha.** *By: Eng. Abdullah Shaher, Cardiff University (Saudi Arabia)*
PPS07 - **Effect of Ibri Solar in AGC Operation.** *By: Eng. Malik Salim Alshabibi, Oman Electricity Transmission Company (OETC) (Oman)*
Theme A2: System Operation and Control
PPS08 - **Hybrid methodology of reserve calculation.** *By: Eng. Mohamed Hosny Abdel Halim Hussein, DEWA (United Arab Emirates)*
PPS09 - ***Review of UV and UF load shedding schemes in large power systems: case of the Kingdom of Saudi Arabia.*** *By: Eng. Yazeed Al-Washeel, Saudi Electricity Company (Saudi Arabia)*
PPS10 - **Load Forecasting using Machine Learning in SEC – EOA.** *By: Eng. Ahmed Taher AlAwami, Saudi Electricity Company (Saudi Arabia)*
PPS11 - **Optimal Voltage Tuning and KPIs Enhancements.** *By: Eng. Fahad Zaid AlJerwan, National Grid, SA (Saudi Arabia)*
PPS12- **Calculation of The Minimum Threshold Level of Inertia for Oman's System.** *By: Eng. Anwar Al-Mughaizwi, Oman Electricity Transmission Company (Oman)*

Day 2: Tuesday 15th November 2022 [21st Rabi-Al-Thani 1444]

Second 2 - Posters
Theme B2: Transformer Design, Manufacturing, Life Cycle and Performance
PPS13 - **Harmonics analysis of different core materials used in Transformer.** *By: Eng. Kapil Sharma, ERDA (India)*
PPS14 - **Unlocking a new dimension of OLTC for current and future high performance power system applications in the Middle East.** *By: Eng. Ajay Krishnan Nilakantan, Maschinenfabrik Reinhausen GmbH (Germany)*
PPS15 - **Partial Discharge Advanced Testing on Power Transformers – Case Study.** *By: Eng. Sofiane Bakkay, OMICRON (Bahrain)*
Theme A3: System Development & Economics
PPS16 - **Challenges to Consider for Digitalization of Power Equipment.** **By:** *Eng. Noorul Ameen, Aramco (Saudi Arabia)*
Theme B5: Overhead Lines and Insulated Cables
PPS19 - **An investigation into methodology to develop an insulation pollution map in GCC countries.** *By: Dr. Vasudev Nagaraju, GCC Electrical Testing Laboratory (Saudi Arabia)*
PPS20 - **Advanced Technologies to Protect Cables in Coastal Areas.** *By: Eng. Mohammed Al Sumri, Oman Cables Industry S.A.O.G (Oman)*
PPS21 - **Failure Analysis of ACSR conductor of overhead transmission line - a case study.** *By: Eng.Vilas Gunjal, Electrical Research and Development Association (India)*
PPS22 - **Maintenance Practices and Test Methods for Improving Reliability and Service Life of Composite Insulators.** *By: Dr. Nitin Shingne, Electrical Research and Development Association (India)*
PPS23 - **Oil Leak Locating for LPOF HV&EHV Cable.** *By: Eng. Amer Abdullah, National Grid (Saudi Arabia)*
PPS24 - **Increasing Emissivity and Reducing Losses Of Overhead Conductor.** *By: Eng. Vitthal, Oman Cables (Oman)*
PPS25 – **Shrinkage of XLPE Insulation of HV Power Cables.** *By: Eng. Mohammad Nabih Al Saati, Riyadh Cables Group (Saudi Arabia)*
PPS26 - **Detection of MV downed conductor overhead feeder faults by measurement in LV side of Distribution Transformers.** *By: Eng. Sarfaraz Shaikh, ABB (Saudi Arabia)*

Day 3: Wednesday 16th November 2022 [22nd Rabi-Al-Thani 1444]

Third – Posters
Theme B3: Substations, Switchgear and HV Equipment
PPS17 - **Digital Voltage Selection Schemes.** *By: Eng. Najla Rahma Alshamsi, Dubai Electricity and Water Authority (United Arab Emirates)*
Theme A5: Distribution Systems
PPS18 - **Demand Side Based Evaluation for Technical Performance of Distribution Companies.** *By: Eng. Sherein Abdalla Abdelsalam Marzouk, EgyptERA (Egypt)*
Theme A6: Smart Grids
PPS27 - **The Evolving R&D Needs in the Changing Grid Scenarios.** *By: Eng. Asim Khalid Al-Yemni, National Grid Saudi Arabia (Saudi Arabia)*
PPS28 - **Enhanced Delay Control (EDC) for mission critical ap-plications in MPLS-TP communication technology.** *By: Eng. Peter Heylen, OTN Systems NV (Belgium)*
PPS29 - **Insertion of Microgrids In GECOL Grid.** *By: Eng. Mohamed Esreraig, GECOL (Libya)*
PPS30 - **Testing challenges and solutions for achieving accurate measurements in Smart Grids.** *By: Eng. Mohamed Ali, OMICRON (Bahrain)*
Theme B6: Asset Management for Power Systems & HVDC and FACTS Technology
PPS31 - **Corona Discharge Monitoring to Predict Flashovers in High Voltage Switchyard Equipment.** *By: Eng. Ghulam Hashmi, Saudi Aramco (Saudi Arabia)*
PPS32 - **Optimal Allocation and Sizing of Electric Vehicle Charging stations on highways.** *By: Eng. Ahmed Hassan Hammam, Assiut University (Egypt)*
PPS33 - **Digital Transformation in Asset Performance Management of Transco's Power Transmission Network.** *By: Eng.Balasubramanian Nainar, Transco (United Arab Emirates)*
PPS34 - **Al Fadhili HVDC Control and Protection Challenges and Needs for upgrade.** *By: Eng.Ranjith Kumar Panigrahi, GCCIA (Saudi Arabia)*
PPS35 - **Grounding Arrangement Challenges of Parallel Bipolar LCC HVDC Scheme.** *By: Eng. Muntaseer Husain, General Electric (India)*