



Position Title	Senior Consultant for Substation & Power Projects
Name of Expert	Mr. Samir Kumar Deb
Date of Birth	20.08.1948
Country of Citizenship/Residence	Indian

Education:

Educational Institutions	Jadavpur University, India
Dates	1975
Degree(s)/diploma(s) obtained	BEE in Electrical Engineering

Employment record:

Period	Employing organization and your title/position. Contact information for references	Country	Summary of activities performed relevant to the Assignment
2008 – Present	Employer: SATCON Position: Sr. Consultant for Substation & Power Projects	India	- Design, Engineering and Consultancy services for EHV Transmission Lines, MV & LV Distribution Lines and Substations up to 400kV in India and Abroad. - Electrical system studies such as Load Flow analysis, Transient Stability analysis, Short Circuit analysis using ETAP software. - Design of Transmission Tower configuration, Tower spotting and loading calculation, Sag & Tension calculation, Preparation of Stringing Chart, Electrical Clearance diagram, Conductor selection. - Complete study of Earthing calculation, Lightning Protection calculation and Lighting calculation, Conductor and HV, MV & LV Cable sizing calculation. - Power Transmission and Distribution system planning, Load forecasting and EHV system modeling.
1978 – 2008	Employer: West Bengal State Electricity Transmission Company Ltd. (WBSETCL) Position: Additional Chief Engineer	India	Responsible for - Design, Planning, Operation, Maintenance & Renovation of 400kV, 220kV & 132kV Overhead Transmission Lines and Substations in various regions of West Bengal, India in the capacity of Assistant Engineer, Divisional Engineer, Superintending Engineer, Dy-Chief Engineer & Additional Chief Engineer in Transmission Wing. Some important Transmission Lines are: - 400kV Jeerat – STPS DC Transmission Line. - 400kV Kolaghat – Durgapur, DC Transmission Line. - 220kV Kasba – Jeerat, DC Transmission Line. - 220kV Abagh – Midnapur DC Transmission Line. - 132kV Salt Lake – Kasba, SC LILO Line. - 132kV Howrah – Liluah DC Transmission Line.



Period	Employing organization and your title/position. Contact information for references	Country	Summary of activities performed relevant to the Assignment
			Some important Grid Substations are: - 400/220/132/33kV Arambagh Substation. - 400/220/132/33kV Jeerat Substation. - 220/132kV Kasba Substation. - 220/132kV Lakshmikantapur Substation. - 132/33/11kV Salt Lake Substation. - 220/132/33kV Kolkata Leather Complex. • Design, Operation & Maintenance of 132kV, 220kV & 400kV Substations and Transmission Lines. • Construction of 132kV, 220kV & 400kV Transmission Lines. • Construction of 132kV, 220kV Substations. • Office Administration & HR Policy. • Dealing Commercial matters, Tendering, Revenue and Capital Budget. • Design, Planning, Operation & Maintenance of 132kV, 220kV & 400kV Substations and Transmission Lines. Preventive maintenance & breakdown restoration of Transmission Lines. Construction of 132kV, 220kV & 400kV Transmission Lines. Construction of 132kV, 220kV & 400kV Substations. Office administration. • Operation & maintenance of 33kV Substation, construction of micro Hydroelectric Power Plant.
1976 – 1978	Employer: Post & Telegraph Department, Govt. of India Position: Junior Electrical Engineer	India	Responsible for • Installation of new Telephone Exchange in Kolkata under Japanese collaboration. The Exchange adopted X-bar technology which was the latest technology in Telecommunication Engineering at that time. • Erection, Operation & Maintenance of Automated Central Air Conditioning Plant of the Telephone Exchange, housed in a high rise building.

Countries in which He contributed in Projects (other than India):

- Oman, Qatar, Nigeria, Niger, Tanzania, Sierra Leone, Nepal, Afghanistan.

Membership in Professional Associations and Publications:

- Fellow of the Institution of Engineers (India), FIE.

Language Skills :

Language	Reading	Writing	Speaking
English	Excellent	Excellent	Excellent
Hindi	Excellent	Excellent	Excellent
Bengali	Excellent	Excellent	Excellent



Work Experience:

Detailed Tasks Assigned on Consultant's Team of Experts:	Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks
	<u>Experience no. 1:</u> Job Title / Description: Owner's Engineering Services for 33/400kV Substation and 400kV Transmission Line for 800 MW Hybrid (Solar, Wind and BESS) Power Plant at Kurnool in Andhra Pradesh. Location: Andhra Pradesh, India. Position Held: Sr. Consultant – Electrical. Year: 2024 – Ongoing. Client: M/s ABC Cleantech Private Limited, India. <u>Assignment/Activities:</u> Preparation of Request for Proposal (RFP) comprising of Technical specifications and conceptual drawings, Bid evaluation (Technical part) and Recommendation report. Review and approval of all the Electrical drawings, documentations, calculation review and approval for construction, Vendor drawings review and comments / suggestions.
	<u>Experience no. 2:</u> Job Title / Description: Design, Engineering and Consultancy services for completion of one (1) no. new 132kV Transformer Bay of Solar Plant in existing 132kV Switchyard at Shree Cement Limited – Unit Solar, Beawar, Rajasthan. Location: Rajasthan, India. Position Held: Sr. Consultant – Electrical. Year: 2023 – 2024. Client: M/s Udayan Heavy Electricals Pvt. Ltd., India. <u>Assignment/Activities:</u> System study, Basic & Detail Design Engineering, Preparation of Technical Specifications & Data Sheets, Electrical drawings & calculations, Relay settings & Relay coordination study, Cable schedule & Interconnection diagram, provide online training to Client's personnel etc.
	<u>Experience no. 3:</u> Job Title / Description: Design, Engineering and Consultancy services for Construction of new 132kV Single Circuit Transmission Line from existing 132kV Overhead Line to new 132/11kV DASA Substation at Niger. Location: Niger. Position Held: Sr. Consultant – Electrical. Year: 2024 – Ongoing. Client: M/s Global Atomic Corporation, Canada. <u>Assignment/Activities:</u> System study, Basic & Detail Design Engineering, Preparation of Electrical drawings & calculations, Cable schedule & Interconnection diagram, etc.
	<u>Experience no. 4:</u> Job Title / Description: Prebid Engineering services for the Tanzania – Zambia Transmission



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	Interconnector Project comprising of Proposed Iringa, Kisada, Mbeya, Tunduma 400/220/33kV Substations (Lot-1 & 2) and Sumbawanga 400/220/66/33kV Substation (Lot-3) of TANESCO in Tanzania. Location: Tanzania. Position Held: Sr. Consultant – Electrical. Year: 2022. Client: M/s L & T Ltd., Power Transmission & Distribution, Sharjah. Assignment/Activities: Prebid Engineering to verify the quantified items of Tender BOQ, estimate the BOQ of 'LOT' items and preparation of Electrical layout Plan & Section of the proposed 400/220/33kV and 400/220/66/33kV Substations.
	Experience no. 5: Job Title / Description: Upgradation of Nallalam - Kunnamangalam 66kV Transmission Line to 110kV Double Circuit Transmission Line Under LMSD, Nallalam, India. Location: Kerala, India. Position Held: Sr. Consultant & Designer. Year: 2020. Client: Kerala State Electricity Board Ltd. Transmission Division Nallalam, Kozhikode, India. Assignment/Activities: Design of 110kV Double Circuit Transmission Line Towers with necessary extension arrangements. Review and finalize the Fabrication drawings and Shop drawings of 110kV Double Circuit Transmission Line Towers. Design changes with respect to construction. Provide clarifications to Client's comments.
	Experience no. 6: Job Title / Description: Design and Engineering of 132kV Outdoor Switchyard for Madhya Solu Khola Hydro Power Project, Nepal. Location: Nepal. Position Held: Sr. Design Engineer. Year: 2018 – 2020. Client: M/s GH Energy Pvt. Ltd., India. Assignment/Activities: Review & approval of design drawings, SCADA block diagram, HVWS Firefighting System, design of Control Room building, Transformer sizing calculations, vendor drawings etc.; Load balance calculations, Load flow calculations, Load forecasting. Design changes with respect to construction. Provide clarifications to Client's comments.
	Experience no. 7: Job Title / Description: Crossing arrangement of existing 400kV Double Circuit Transmission Line by the



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	new 132kV Double Circuit Transmission Line. Location: India. Position Held: Sr. Consultant & Designer. Year: 2020. Client: M/s Rungta Plant, Chaliyama, Saraikela (a Unit of Rungta Group). Assignment/Activities: Design of complete Line Crossing arrangement (Electrical, Civil & Structural). Sag & Tension calculation and preparation of vertical clearance diagram. Verification of existing 132kV Tower structure and foundation design and suggest the modification required. Calculate maximum allowable spans for different type of 132kV Towers with respect to changes in angle of deviations. Preparation of Tower Spotting Data for 132kV Transmission Towers at 400kV Line crossing. Provide clarifications to Client's comments.
	Experience no. 8: Job Title / Description: Electrification of the propose SEZ at AMRL Hightech City, Nanguneri, Tuticorin, Tamilnadu by construction of 110/11kV, 1x10MVA Substation and its downstream Distribution network. Location: India. Position Held: Sr. Consultant & Designer. Year: 2018. Client: AMR Group of Hyderabad and Tamil Nadu Industrial Development Corporation Limited (TIDCO). Assignment/Activities: Preparation of Basic Technical Specification and Data Sheet, BOQ, estimation of the complete system. Review & approval of design drawings, SCADA block diagram, HVWS Fire fighting System, design of Control Room building, Transformer sizing calculations, vendor drawings etc.; Load balance calculations, Load flow calculations, Load forecasting. Design changes during construction and prepare as build drawing.
	Experience no. 9: Job Title / Description: 132/33kV GIS Substation of WBSETCL in Debra, West Bengal, India. Location: India. Position Held: Sr. Consultant. Year: 2017 – 2019. Client: WBSETCL. Assignment/Activities: Complete Design & Engineering (Electrical, Civil & Structural) services for 132/33kV GIS grid station at Debra, West Bengal. Voltage drop calculation and selection of power & control cables. Preparation of Bill of Material of cabling systems. Cable schedule and termination details, Equipment sizing calculation.



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	<u>Experience no. 10:</u> Job Title / Description: 220/132/33kV GIS Substation of WBSETCL in Sagardighi, West Bengal, India. Location: India. Position Held: Sr. Consultant. Year: 2016 – 2017. Client: WBSETCL. <u>Assignment/Activities:</u> Complete Design & Engineering (Electrical & Structural) services for 220/132/33kV GIS grid Station at Sagardighi, West Bengal. Selection of Transmission Line Towers. Calculating Sag & Tension at Transmission Towers. Review of Pole foundations, Vendor drawing review, Earthing calculations, Short Circuit Force calculations of Switchyard, Power and control cable scheduling works. Review of Technical offer for control & protection panel. Preparation of cable schedule & interconnection diagram.
	<u>Experience no. 11:</u> Job Title / Description : Construction, Rehabilitation and Reinforcement of 330/132kV and 132/33kV Transmission Substations with 330kV LILO Arrangement of TCN at New Kano & Billiri, Nigeria (Lot 2). Location: Nigeria. Position Held: Sr. Design Engineer. Year: 2016 – 2017. Client: M/s Supreme & Co. Pvt. Ltd. <u>Assignment/Activities:</u> Preparation of Technical specifications, Detail engineering drawings for Electrical, Control & Protection schemes, Civil, Structural, SCADA, HVAC, Fire protection and PLC Communication systems.
	<u>Experience no. 12:</u> Job Title / Description : 220/132/33kV Outdoor Substation and 220kV Transmission Line in Jharkhand, India. Location: India. Position Held: Sr. Consultant. Year: 2016. Client: Jharkhand Urja Sanchar Nigam Limited (JUSNL). <u>Assignment/Activities:</u> Complete Engineering and Design of the Project performed under Satcon, deputed by Technofab Engineering Ltd, Faridabad, India. Review of 220kV Transmission Line route plan. Selection of Transmission Line Towers. Calculating Sag & Tension at Transmission Towers.



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	Review of Technical offer for control & protection panel, Preparation of cable schedule & interconnection diagram. Voltage drop calculation and selection of power & control cables, cable termination details, Equipment sizing calculation.
	<u>Experience no. 13:</u> Job Title / Description: Upgrade of Freetown Primary Distribution Network, Sierra Leone. Location: Sierra Leone. Position Held: Sr. Consultant & Designer. Year: 2015 – 2016. Client: Ministry of Energy (Republic of Sierra Leone). <u>Assignment/Activities:</u> 33kV Transmission Line design, Conductor sizing, Supervision of Tower Structure design. Preparation of Sag & Tension calculation and Stringing Chart. Vendor drawings review. Preparation of Technical specifications, detail Engineering drawings for Electrical, Civil, Structural, SCADA, HVAC, Fire protection and PLC Communication systems. Voltage drop calculation and selection of power & control cables. Cable schedule and termination details, preparation of Bill of Material of cabling systems. Review of Technical offer for control & protection panel. Equipment sizing calculation, Earthing & Lightning Protection calculation.
	<u>Experience no. 14:</u> Job Title / Description: Consultancy Services For Design and Supervision of New 132/33kV Samad & Sinaw GIS Grid Stations, Oman. Location: Oman. Position Held: Sr. Design Engineer. Year: 2015. Client: M/s Atlas International Engineering Consultants. <u>Assignment/Activities:</u> Preparation of Tender Document and Tender Drawings for Electrical, Civil, Structural, HVAC, Fire Fighting, SCADA, FO communication, Integrated Security System (CCTV), Plumbing Systems etc., Seminar presentation of Designs.
	<u>Experience no. 15:</u> Job Title / Description: 132/33kV Power Supply System, modernization of SMS-I, India. Location: India. Position Held: Sr. Consultant & Designer. Year: 2015. Client: Steel Authority of India Limited (SAIL). <u>Assignment/Activities:</u> Review of 132kV Transmission Line route plan. Selection of Transmission Line Towers. Calculating Sag & Tension at Transmission Towers.



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	Complete Design & Engineering services for 132/33kV GIS grid Station, Vendor drawing review, Preparation of Technical Specifications and Data Sheets. Review of Technical offer for control & protection panel, Preparation of cable schedule & interconnection diagram. Equipment sizing calculation.
	<u>Experience no. 16:</u> Job Title / Description: Improvement/Reinforcement of the existing 132/66/11kV Power Distribution System in The Pearl Qatar. Location: Qatar. Position Held: Sr. Consultant & Designer. Year: 2015. Client: The Union Development Company (UDC). <u>Assignment/Activities:</u> Review of the existing Electrical infrastructure to produce a narrative describing of Distribution, in terms of HV, MV and LV (street lighting etc). Review of existing calculations. Estimation of electrical loads for the existing buildings. Comparison / analysis of calculated loads versus a schedule of actual connected loads. An analysis of the impact of the loads for the Targeted areas upon the existing infrastructure. Equipment sizing calculations. Preparation of Key Single Line Diagrams, Loading calculations. Comparison of plot wise calculated loads. Assessment of Load forecasting.
	<u>Experience no. 17:</u> Job Title / Description: 132/33kV GIS Substation in Orissa, India. Location: India. Position Held: Sr. Consultant& Designer. Year: 2015. Client: Odisha Power Transmission Corporation Limited (OPTCL). <u>Assignment/Activities:</u> Complete Engineering and Design of the Substation & Design for the 132kv Transmission Line Tower selection, Sag & Tension calculation and preparation of Stringing Chart. Conductor selection calculation. Review of Technical offer for control & protection panel. Preparation of cable schedule & interconnection diagram. Equipment sizing calculation, Earthing & Lightning Protection calculation, Voltage drop calculation and selection of power & control cables. Cable termination details.
	<u>Experience no. 18:</u> Job Title / Description: 132/33kV GIS Substation in Jharkhand, India.



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	Location: India. Position Held: Sr. Consultant & Designer. Year: 2015. Client: Steel Authority Of India Ltd (SAIL). Assignment/Activities: Complete Engineering and Design of the Substation & Design for the 132kV Transmission Line Tower selection, Sag & Tension calculation and preparation of Stringing Chart, Conductor selection calculation. Equipment sizing calculation, Earthing & Lightning Protection calculation, Voltage drop calculation and selection of power & control cables. Cable schedule and termination details.
	Experience no. 19: Job Title / Description: 220/20kV and 110/20kV Outdoor Substations in Afghanistan. Location: Afghanistan. Position Held: Sr. Consultant. Year: 2014. Client: US Army Corps of Engineers. Assignment/Activities: Complete Engineering and Design of the Project performed under Satcon, deputed by Assist Consultants Inc. Voltage drop calculation and selection of power & control cables. Cable schedule and termination details, preparation of Bill of Material of cabling systems. Equipment sizing calculation.
	Experience no. 20: Job Title / Description: Basic & Detail Engineering Services, Project Management, Site Supervision and Control of Electrical, Civil, Structural, HVAC, Fire Fighting, Plumbing, SCADA, PLCC Systems of 132/33kV AIS Substation at Song, Nigeria. Location: Nigeria. Position Held: Sr. Design Engineer. Year: 2013 – 2017. Client: M/s Qingdao Wuxiao Group Co. Ltd. & Ahmin Technology & Power Systems Ltd J.V, Abuja, Nigeria. Assignment/Activities: Complete Engineering and Design of the Project including Voltage drop calculation and selection of power & control cables. Cable schedule and termination details, preparation of Bill of Material of cabling systems. Equipment sizing calculation.
	Experience no. 21: Job Title / Description: Basic & Detail Engineering Services, Project Management, Site Supervision and Control Of Electrical, Civil, Structural, SCADA, PLCC Systems Of 2x132kV Line Bay Extension at existing 330/132kV Yola Substation of TCN, Nigeria. Location: Nigeria.



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	Position Held: Sr. Design Engineer. Year: 2013 – 2017. Client: M/s Qingdao Wuxiao Group Co. Ltd. & Ahmin Technology & Power Systems Ltd J.V, Abuja, Nigeria. Assignment/Activities: Complete Engineering and Design of the Project including Voltage drop calculation and selection of power & control cables. Cable schedule and termination details, preparation of Bill of Material of cabling systems. Equipment sizing calculation.
	Experience no. 22: Job Title / Description: 220/132/33kV Outdoor Substation in Jharkhand, India. Location: India. Position Held: Sr. Consultant & Designer. Year: 2013. Client: JUSNL. Assignment/Activities: Complete Engineering and Design of the Substation and Design for the 220kV Transmission Line Tower selection, Sag & Tension Calculation and preparation of Stringing Chart, Conductor selection calculation. Equipment sizing calculation, Earthing & Lightning Protection calculation.
	Experience no. 23: Job Title / Description: 400/220/132/33kV Outdoor Substations in West Bengal, India. Location: India. Position Held: Sr. Consultant & Designer. Year: 2011. Client: WBSETCL. Assignment/Activities: Complete Engineering and Design of the Substation & Design for the Transmission Line Tower selection of different voltage levels. Sag & Tension calculation and preparation of the Stringing Chart, Conductor selection calculation. Equipment sizing calculation, Earthing & Lightning Protection calculation.
	Experience no. 24: Job Title / Description: Comprehensive Electrical Consultancy & Project Management for 33kV System including related Civil Jobs & Project Management for installation & Commissioning of 33kV Ring Main system and 33/0.433kV Substations. Location: India. Position Held: Sr. Consultant & Designer. Year: 2009 – 2010. Client: National Institute of Technology, Rourkela, Orissa, India.



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	<u>Assignment/Activities:</u> Complete Engineering & Design of 33kV Ring Main system, Load Flow analysis, Vendor drawing review, Preparation of Technical Specifications, Selection of U/G cables, Short Circuit study. Complete Engineering & Design of 33/0.433kV Substations under the scope of works. Engineering & Design for augmentation of existing 11kV Ring Main system to 33kV Ring Main system. Equipment sizing calculation.
	<u>Experience no. 25:</u> Job Title / Description: 400/220/132/33kV Arambagh Grid Substation 400/220/132/33kV Jeerat Grid Substation 220/132kV Kasba Grid Substation 220/132kV Lakshmikantapur Grid Substation 132/33/11kV Salt Lake Grid Substation 220/132/33kV Kolkata Leather complex 400kV Jeerat – STPS DC Transmission Line. 400kV Kolaghat – Durgapur, DC Transmission Line. 220kV Kasba – Jeerat, DC Transmission Line. 220kV Abagh – Midnapur DC Transmission Line. 132kV Salt Lake – Kasba, SC LILO Line. 132kV Howrah – Liluah DC Transmission Line. Location: India. Position Held: Assistant Engineer, Divisional Engineer, Operation & Maintenance Engineer. Year: 1978 – 2008 Employer: WBSETCL <u>Assignment/Activities:</u> Renovation of various Substations and Transmission Lines. Design and construction of various Substations and Transmission Lines. Augmentation and installation of new bays. Breakdown restorations, installation of various Substation equipments, installation and commissioning of Transformers, installation of Transmission Line Towers and associated equipments. Bay extensions at various Substations.

Expert's contact information:

E-Mail: info@satcon.in

Phone: +913340628483



Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Client.

<u>Samir Kumar Deb</u>		30/11/2024
Name of the expert	Signature	Date
Satyaki Mukherjee		30/11/2024
Name of the authorized representative of the Consultant (person who signs the Proposal)	Signature	Date