

		<ol style="list-style-type: none"> 7. Relay & metering diagrams, control, protection, and Annunciation schemes. 8. Substation Sizing including construction of substations as applicable. 9. Preparation of substation equipment layout, providing cut-outs for complete substation. 10. Sizing calculations for cables, cable trays/ cable trenches including providing cable trays and RCC trenches. 11. Procurement engineering activities including preparation of enquiry specifications, bid evaluation, preparation of purchase specifications, expediting and approval of vendor drawings. 12. Area-wise illumination level calculation and preparation of power supply distribution scheme for normal, emergency, and critical lighting. 13. Calculations for plant earthing and lightning protection. Carryout soil resistivity test to ascertain the soil resistivity value for earthing system design as applicable. 14. Preparation of electrical layouts such as equipment layouts, lighting layouts, cabling layouts, earthing layouts, lightning protection layout, plant Communication layouts, fire alarm layouts, telephone layouts 15. Cable termination and equipment Installation details. 16. Cable schedule, interface drawings, interconnection diagrams, etc. for plant communication system, fire detection & alarm system and telephone system, including all owner-supplied equipment. 17. Equipment specifications and data sheets. 18. Preparation of bill of materials for cabling, lighting, earthing, communication, fire alarm, telephone system and miscellaneous items. 19. Cable Schedules, drum schedules. 20. Collection of data from site/owner for carrying out detailed engineering. 21. Preparation of Lighting/ Power panel schedules. 22. Interconnection drawings. 23. Relay Co-ordination drawings, Protection coordination drawings, relay setting calculations; relay parameterization for complete power system. 24. Shop inspection and testing procedures and QA schedule. 25. Field testing and commissioning procedures. 26. Preparation of as-built drawings on project completion for final records. 27. Preparation of operation and maintenance schedule/manuals. 28. Type, routine, and acceptance test certificates.
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		<p>29. Vendor and sub vendor drawings.</p> <p>30. Contractor shall also coordinate with manufacturer of equipment free issued / supplied by others, wherever required, and shall freely supply all technical information for this purpose as and when called for.</p> <p>31. Any other work/ activity, which are not listed above, however are necessary for completeness of electrical system.</p> <p>32. The CONTRACTOR while performing design and engineering activities shall adhere to following guidelines:</p> <p>33. CONTRACTOR, if not covered but required shall prepare any additional specifications for equipment or bulk material. CONTRACTOR shall follow current national & international standards/specifications for the equipment that are not covered by OWNER's specifications.</p> <p>34. The drawings supplied by OWNER define the basic system design and distribution philosophy for the package. This is based on preliminary electric load data and for guidance purpose only. CONTRACTOR shall develop detailed drawings and submit for review.</p> <p>35. Contractor to note that equipment ratings and quantity, wherever specified in the bid package shall be considered as minimum rating & quantity. Contractor shall be responsible to verify the same and provide equipment with higher rating & quantity subject to minimum rating as per bid package requirements. Compliance shall be without any extra cost and time implications to owner.</p> <p>36. The substation shall have located in safe area and outside the risk zone. Consideration shall give to vehicular traffic or any other factor that might affect the operation of substation.</p> <p>37. The switchgear room should be pressurized to prevent ingress of dust & to prevent or to make more reliable heat sensitive electrical equipment and panel. Substations have three entries one for normal entry, second for equipment entry & third for emergency exit.</p> <p>38. Flooring to the battery room & walls up to 1-meter height shall have acid/alkaline resistant protective material coating.</p> <p>39. The formation of cable trench/tray shall be required for cable laying shall be under bidder's scope.</p> <p>40. Paint shade shall be as follows: (a) TR set: Blue RAL 5012 (Legend in Block letters) (b) Motor: Blue RAL 5012 (c) Panel: Front and rear panels in Grey (RAL9002) End panel sides in blue (RAL 5012).</p>	
7	Instrument Transformer	One minute power frequency Withstand voltage between Secondary terminal and earth	5 kV