S.No	M/s Satyam Computer Services Ltd Query	BHEL Clarifications
1	How is the input read from Single Line Diagram (SLD) ? Is the AutoCAD SLD to be read / inputs keyed in manually ?	We understand it may be done manually only. Alternative solutions may also be looked into.
2	Is generation of 'plot plan' part of the application program output ?	No. It is output of PDMS
3	**9.3 Conceptual Line Diagram**	
	Question: What are the major enhancements expected in Conceptual Line diagram compared to Single Line diagram ? Please provide a sample of conceptual line diagram (expected from application program) for our understanding.	Refer clause no. 9.3 of technical specification. Conceptual Line diagram is an intermediate stage between SLD & 3D model. It will be essentially a three line sketch, similar to Layout arrangement with additional information like layout details of all equipment including post insulators which are not shown in SLD (location/co-ordinate, orientation, height of structure & connection etc), bus (height of tower/gantry/peak, type of conductor, sag etc), connections (aluminium tube/conductors), shield wire. CLD does not exist as of now, it has to be developed during project execution. Layout can be referred to get an idea of CLD.
	Question: BHEL states "All the user input will be systematically saved and made available". Is history tracking required?	Yes.
	Question: BHEL states "In power projects or negotiated sub station projects the design automation engine will suggest the various alternatives for freezing of the conceptual line diagram. BHEL has to provide various options / alternative in the form of logic to implement this activity". Please clarify the nature of alternatives.	In power projects or negotiated sub station projects, quite often customer does not provide a conceptual design information regarding layout. It is expected that once the knowledge base of switchyard engineering is captured, a library of possible alternatives of layouts shall be available based on Voltage class and bus arrangement. The alternatives will be mapped into the system during the course of the project. BHEL will provide various alternatives of layout.

S.No	M/s Satyam Computer Services Ltd Query	BHEL Clarifications
	9.5 Deliverables <u>Question:</u> Under section 9.5, please explain "Generating interface with forms of PDMS for creating 3D models". Does this mean creation of additional PDMS forms (if required) or is the scope limited to creation of application to interface with only the **existing** PDMS forms?	The customisation of switchyard on PDMS platform is complete. Creation of additional forms is not envisaged. Scope as envisaged is limited to populating the forms. Alternative solutions bypassing the forms can also be looked into during execution stage.

4	We presume the following are the deliverables expected from the application. (9.5)
	a. Conceptual Line Diagram (CLD)
	b. **Design documents**
	  i. HV Cable sizing report
	  ii. Design calculation for conducting sizing
	  iii. DSLP calculation
	  iv. Short circuit force for tubular bus
	  v. Short circuit force for strung bus with spaces spacing calculation
	  vi. Sag and swing calculation
	  vii. Sag tension chart
	  viii. Earth mat calculation
	  ix. Soak and sump pit calculations
	  x. Electrical layout and section elevation for switch yard
	  xi. LT cable sizing
	  xii. 220 V and 48 V Battery sizing
	  xiii. Calculation for CT /VT/CVT
	  xiv. Structural Loading Diagram
	c. Interface to (in the format accepted by PDMS) PDMS.
	
	Kindly let us know if our presumption is correct.
		Yes
		Refer clause 2.3 & 9.5 of technical specification

5	Whether any specific CAD engine selection is required. (2.2 Technical Bid-Technical proposal)? What should the CLD output format be (*.dwg,*.dgn etc.)??	It has to be proposed by the bidder. The output may be in any format which enables us to view, print etc.

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6	What is the expectation out of the KBE system?	1. One integrated solution for complete layout design & drawing 2. Avoiding variations in design calculations 3. Avoiding reworks etc 4. Ability to integrate switchyard design experience. 5. Ability to operate PDMS with minimum skill 6. Using less experienced persons to deliver switchyard design
7	Are all the rules captured, exist in a documented format?	No. It is a part of system study in stage 1.
8	Whether the developed application should run in different machines concurrently. (9.4 Flexibility and user friendliness of the module)	Yes
9	Assumed target development platform is **Windows.** Please confirm.	OK
10	BHEL to provide all the logics and source code details for all the design calculations if possible in the form of flow chart / block diagrams.	Yes
11	BHEL to provide all the source code(C/Fortran), excel files along with existing drawings, PDMS modules.	Source code or logic shall be provided. Any information/program required for the project shall be given. Vendor to ensure confidentiality of the same.