

4.36 – INSTALLATION (ERECTION, TESTING AND COMMISSIONING) SUPERVISION SERVICES

The contractor shall extend various installation supervision services to BHEL site establishment as specified and explained in the following clauses. These installation supervision services *are in addition* to the scope of work specified in the clauses in Section-4 of Special Conditions of Contract of the tender specification issued initially. Separate item rate for these services are not envisaged. Bidder shall include the price of these services in rates being quoted for various items of work as per price bid.

4.36.1 DETAILS OF MAJOR PRODUCT AREAS REQUIRING INSTALLATION (ERECTION, TESTING, COMMISSIONING) SUPERVISION SERVICES

The contractor shall provide to BHEL installation supervision services for the installation of various equipments/components/assemblies/sub-assemblies/parts etc. **This service shall be available to BHEL irrespective of terminal points of erection testing and commissioning work covered under this tender.** BHEL may use these services at its discretion. The service categories are:

A. Switchyard Package

1. Switchyard Erection: Two service points progressively
2. Switchyard testing / commissioning: Two service points progressively

B. Main Plant Electrical Package

1. HT and LT Transformers: One service point
2. HT switchgears: One service point
3. LT switchgears: One service point
4. Busducts: One service point
5. ESP: One service point

4.36.2 SCOPE OF INSTALLATION (ERECTION, TESTING, COMMISSIONING) SUPERVISION SERVICES

The contractor under this contract shall provide services towards installation (erection, testing and commissioning) supervision as per instructions of BHEL engineer for the relevant product system assigned as above for the time being and shall broadly include the following responsibilities:

- Studying the relevant drawings, documents etc. of concerned product/ system
- Draw out periodical plans with the engineers/supervisors of the contractor deployed for direct on the job supervision.
- Check with the stores the receipt of required materials for the current plan and for the period ahead as may be directed.

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- Check the materials for correctness and soundness and ensure proper stacking, storage, preservation of materials brought to site for erection, refer and implement concerned documents in this regard.
- Ensure proper handling of materials during all site activities.
- Assist contractor in tracing of materials wherever required and as instructed
- Study, understand and implement the erection, testing & commissioning procedures/manuals requirements as applicable. Seek guidance of BHEL engineer wherever required.
- A study the relevant field quality plans and understand requirements of quality checks especially with regard to customer check points.
- Carry out all erection, testing and commissioning activities as planned/ instructed.
- Carry out all field checks along with contractor.
- Ensure implementation of safety instructions.
- Verify daily/ periodical reports and maintain progress registers
- Ensure filling of all protocols/ log sheets/ check lists etc
- Ensure material re-conciliation with contractor regularly.

4.36.3 EXPECTED MINIMUM QUALITY OF SERVICE

Contractor shall render the installation (erection, testing and commissioning) supervisory services by ensuring deployment of requisite personnel with adequate educational qualification in engineering and possessing valid and current certificates wherever applicable, having thorough field experience to enable understanding the intricacies of and special requirements involved in erection, testing and commissioning of projects, taking care of inconsistencies and uncertainties associated with flow of project activities. These personnel would be required to work beyond normal working hours, on holidays and irregular working hours. Contractor shall ensure prompt and timely availability of such services as and when required by BHEL. The CV of such personnel shall be submitted to concerned BHEL engineer for approval at site before them being deployed.

4.36.4 PARAMETERS AND QUANTIFICATION OF INSTALLATION (ERECTION, TESTING AND COMMISSIONING) SUPERVISION SERVICES, PERIODIC MONITORING

For the purpose of delivery of the aforesaid installation (erection, testing and commissioning) supervision services & progressive monthly billing by the contractor and release of payment thereof by BHEL, there shall be an action plan jointly agreed by BHEL and contractor. This action plan shall be drawn at the beginning of each quarter/each month/any convenient number of months as per actual project need. The plan shall detail the following aspects.

- Plan period (number of months planned).

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- List of activities/targets to be carried out/achieved by the contractor under the scope of these installation (erection, testing and commissioning) supervision services in the defined plan period.
- Identification of necessary resources to be deployed by the contractor for delivery of the planned activities/targets in the defined plan period.
- Deciding on the break up of the assigned amount towards installation (erection, testing and commissioning) supervision services in the plan period for the purpose of monthly billing by contractor and payment by bhel.

4.36.5 PRICE AND STAGE PAYMENT

Contractor shall include the price for rendering complete installation (erection, testing and commissioning) supervision services in the various item rates as appearing in the rate schedule of price bid. Contractor shall not quote any separate item rate/price for installation (erection, testing and commissioning) supervision services in the rate schedule.

4.36.6 DEFICIENT / UNSATISFACTORY INSTALLATION SUPERVISION SERVICES & NOT RENDERING INSTALLATION SUPERVISION SERVICES

4.36.6.1

Contractor shall render the installation (erection, testing and commissioning) supervision services as per the jointly agreed plan and parameters thereof as described in “parameters and quantification of installation (erection, testing and commissioning) supervision services”. In case the contractor fails in delivering/ rendering these services partly or totally, either qualitatively or quantitatively in the concerned plan period, bhel will take the following recourse.

- Deficient/unsatisfactory services:

In case the level/quality of installation supervision services is found not in compliance with the plan (either in terms of deficiency in quality or quantity or both, with regard to the mutually agreed/identified resources), bhel will communicate the same to the contractor on record. Contractor shall immediately take corrective action to eradicate the complaint. BHEL will not make any payments for such period / number of days when services are found deficient/ unsatisfactory. Payment will be made for the period /number of days of satisfactory services on pro-rata basis as per the following formula.

$$P = P_a \times D_s / D_m, \text{ where}$$

P = amount payable for rendering the installation supervision service satisfactorily in a billing month.

P_a = amount assigned towards the installation supervision service for the concerned month as per agreed plan (5% of RA Bill value).

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D_s = number of equivalent days including Sundays and BHEL holidays of satisfactory services rendered in the particular billing month.

D_m = total number of days including Sundays and BHEL holidays in the particular billing month.

In addition to no payment for the unsatisfactory/deficient services period, a penalty @ 5% applied on the pro-rata amount of the deficient period i.e. 5% of $(P_a - P)$ will be levied on the contractor. This penalty will be recovered from the running account bill of the same month.

4.36.6.2 NOT RENDERING THE SERVICES AT ALL

In the event, the contractor fails to render a particular service during the month (either part of the month or full) BHEL will not make any payment towards that service for such period. Additionally, a penalty @ 15% will be levied as under.

For no service in the entire month:	15% of the total monthly Assigned amount.
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For no services during part of the month:	15% of the pro-rata amount for the defaulting period as per formula given earlier here.
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4.36.7 IRREVOCABLE PENALTY AND DISALLOWED AMOUNT

It shall be specifically noted that the payment disallowed for deficient or nil service in a particular month and/or penalties levied on similar ground, shall not be considered for release in any subsequent month even if the contractor takes corrective action in the later months.