Specification and general terms and conditions.

1. Technical Specification

Supply, installation, testing and commissioning of indoor type micro processor based intelligent power factor correction panel of aggregate capacity of 125 KV Ar, distributed in 06 stages (1X10,2X20,3X25 KV Ar) having auto switching system for each stage, in the form of electromagnetic making and breaking of contacts as per the varying load sensed by the micro processor. The electromagnetic switching system should be capacitor duty only. Each switching stage shall carry a back up protection in the form of triple pole MCB or HRC Fuse with base not less then 1.7 times the charging current of the respective stage. Each switching stage shall have 22.5mm dia Volts AC ON/OFF, Indication of LED Type. The system should have option to run on any automatic and manual mode. In manual mode the system may be operated by the use of 22.5 dia. actuators provided on the front fascia. Self adhesive type switching stage identification should be provided. Control Drawing and operational manual of relay should be essentially provided with panel.

IPFC shall essentially consist of following

a) Panel shall be made out 2.0 mm thick CRCA sheet suitably compartmentalized for front and back open able door system lockable/open able in front by keys having chromium plated 19 mmdia fancy locks. Louvers & air vent gasket for natural flow of air. Bus bar compartment should be separate from functional units. Proper gasket should be used to keep the inner shell completely vermin proof. TPN Aluminums Bus Bar of rating not less than the 1.5 times the rated capacity of the incomer MCCB or SDFU. The rating of the incomer TPN MCCB or SDFU of breaking capacity 35KA should not be less then 1.6 times the cumulative current of the system as one unit. TPN bus bars shall be mounted on suitable size 'F" class insulators made of non hygroscopic, non combustible, track resistant, high strength FRP/SMC/DMC material at an interval not more than 500mm through out the length of the TPN bar. Nine tank (Degreasing, Rinsing, De-Rusting, Activation, Phosphating, Rinsing, Passivation, Water Drying Oven) process shall be used for metal treatment followed by powder coating.

b) Power terminal of the main incomer should be shrouded properly. All inter connections between the main bus bar as well as out going feeders shall be carried out with multy strand copper wire of rating not less than 1.5 times rated capacity of individual out going feeders. All control wires shall be with 2.5 sqmm multi strand flexible copper conductors and shall be bunched, tied, ferruled for proper identification and crimped with adequate size of lugs.

c) The IPFC shall have a bottom channel of size 75X40mm duly coated with zinc metal and powder coated having thickness not less than 100 microns. A detachable gland plate with powder coated should be used to make top and bottom cable entry possible. The

complete panel with inner shell should be powder coated and the degree of protection of inner shell shall be IP-54.

d) IPFC (Intelligent Powder Factor Control) Relay: Micro processor based 144X144mm size flush mounted on size programmable, capable of detecting wrong current transformer connections.

e) Capacitor MPP(Heavy duty): the capacitor shall be housed in box type self extinguishing insulating material operated on three phase 440 Volts AC. With dry type modular design and built in over pressure safety device. Confirming to IP-42 degree of protection.

f) Instrumentation: the panel shall carry following instruments:-

I. Analogue type Volt meter and Ammeter of size 96X96mm to measure current and voltage with selector switches. CT rating should be equal to the rated current carrying capacity of incomer. Auxiliary power supply of 230 Volts AC with back up protection by 6 Amp SP MCB.

II. Indicating lamps 22.5 mm dia. LED type, 230 Volts AC at the incomer of the unit to show three phase availability at the out going of incomer with back up protection by 6 Amp SP MCB. Illuminated push buttons shall be used for indicating start/stop or on/off of each bank switching system. Each bank should have option to run on any automatic and manual mode through selector switches.

III. Off delay timer should be used in the system to protect the capacitors from un skilled technicians. IPFC (Intelligent Power Factor Control) Relay shall be adequately protected through the use of 6 Amp SP MCB. The MCB shall be 10KA breaking capacity with 'D' Characteristics.

IV. Ventilation Fan shall be provided for effective cooling of capacitors.

g) Supply and laying of 3.5 crore X 100 sqmm Aluminium conductor XLPE Insulated Armored cable of 1.1KV Grade also providing & fixing termination for 3.5 croreX 100sqmm aluminium conductor armored cable by using compression type brass gland, heavy duty lugs etc.

2. Terms of payment

- a. 25% of contract value (excluding AMCs) on delivery of Panel & 65% on satisfactory completion of the job.
- b. Balance 10% on completion of guarantee/warrantee period of the one year starting from the date of commissioning.
- c. Comprehensive AMC charges will be paid half yearly on completion of relevant period.

3. Price

The quoted price must be inclusive of sales tax, excise duty, work contract tax etc. subject to tax deducted at source as applicable.

4. Time of completion

Two months after award of work.

5. Penalty

During the period of contract, if BSES imposes any penalty on account of lowering of power factor, the same would be recovered from the supplier.

6. Earnest Money

An amount of Rs.,5,000/- (Rupees five thousand only) is to be deposited in the form of 'Demand Draft' payable in the name of DFC, Janakpuri which is refundable. However, the same shall be forfeited in case of non-acceptance of offer after the work is awarded.

Signature of party/Authorised representative

(U.K.DIWAN) Sr.Mgr(GAD)