

## NOTE

**2016/F(S)II/Misc./2**

**Dated 18/01/2016**

### **Sub: Savings in energy bill of traction-Long term measures**

- 1) With coming into effect the Electricity Act 2003, power has become a tradable commodity and can be procured from any of the Central/State/Private Power generating companies or utilities by Indian Railways to achieve economy in energy bill. Indian Railways has been accorded the status of a 'deemed licensee' under this electricity act as per the notification issued by Ministry of Power. This notification empowers Indian Railways to purchase power from any generating company, or central/state Power Utility Company for its traction purposes. This extends a unique advantage to Indian Railways for procuring electric traction power at the most competitive rate. For this it shall be required that basic infrastructure for last mile connectivity to our Traction Sub Station (TSS) is required to be built by Railways through Transmission lines and Grid Sub Stations (GSS).
- 2) To reap the benefits of 'deemed licensee' status Indian Railways must avail power from various power utilities at length and breadth of India by creating necessary infrastructure by mobilising huge resources. Due to resource constraints it would be appropriate to explore a JV route between Indian Railways and Power Grid (PGCIL), which can be exclusively entrusted with the job of construction/maintenance and operation of transmission lines and grid substations (GSS) required for the last mile connectivity for power evacuation to the TSS. PGCIL has world class expertise in the domain of transmission lines & Grid Substations and this expertise can be exploited for cost efficient construction and operation of last mile transmission lines for supply of traction power at end points. The JV structure would also allow utilisation of surplus capacity of the transmission lines for commercial use, which otherwise would not be possible if Indian Railways constructs stand alone transmission networks (Dadri-MGS transmission line). To accrue maximum benefits out of this arrangement efforts should be in the direction to make JV directly between Indian Railways and PGCIL.
- 3) Dadri-MGS transmission line is passing parallel to large part of eastern freight corridor and alignment of this corridor is parallel to Indian Railways main route. DFC-CIL too needs to be brought in into this transmission network, as this will have a huge redundancy if higher level transmission conductors are used. It is learnt that DFC-CIL

is planning to procure power from State Transmission Utilities (STUs) at higher price. In order to bring down the cost of DFC-CIL operation, it also needs to avail traction power from Dadri-ALD-MGS transmission line. This would also improve the quality and reliability of DFC-CIL traction power supply. Going with STUs offering high power price shall have a huge financial implication as had been the experience of railways in the past. Further along with cost implications the quality and reliability of power has also been an issue with SEBs in past.

- 4) In case DFC-CIL decides to go for its own transmission lines in eastern DFC which would result in duplication of infrastructure at present upto MGS with huge cost implications. This can be avoided as wherever DFC-CIL network is running close to existing railway tracks and with IR transmission lines(Dadri-MGS) having two circuits with one of them unused. This unused circuit can be used by DFC-CIL just by having additional Grid Substations (GSS) to increase the power handling capacity. Cost of constructing additional Grid Substations (GSS) is negligible in comparison to savings achieved in energy bills in long term. Existing transmission lines, such as in ALD Division can handle the existing traffic level and can be upgraded using light weight higher level conductors on existing towers to achieve optimum productivity of asset. The upcoming transmission lines can also be planned with higher level conductor and intermittent GSSs to take care of all Railway and DFC-CIL requirements for future. Proper planning is required at this stage to keep DFC-CIL capital cost and traction bills in control in future. Even DFC-CIL may explore the open access option in case of western freight corridor phase-1 (Rewari-Vadodara) where transmission line and power of STUs is proposed to be used and in this scenario existing power providers may not allow other players to enter the system results in monopolistic situation. It is learnt that in phase-2 (Vadodara-Mumbai) transmission line is being constructed by PGCCIL for DFC-CIL and this will be shared with Railways with an objective of sharing costs and drawing maximum benefits accrued due to open access. With open access arrangement of transmission line DFC-CIL can also procure power from open market at most competitive rates to the benefit of the organization. To get optimum gain it is imperative on the part of Railways and DFC-CIL to explore ways to get open access in phase-1 also.

- 5) On Western DFC, an integrated power supply arrangement has been made for 11 TSSs in Rewari-Ringus-Phulera-Ajmer-Palanpur-Ahmedabad sections of NWR and WR. The power supply is availed through a common transmission line from the nearest GSS having a common metering arrangement. Though this will result in reduction of capital cost of transmission line as well as reduction in operating cost due to reduction in contract demand of the integrated power supply arrangement, the aspect that whether this arrangement has the provision of open access allowing for power procurement from open market needs to be checked. It is also learnt that proposed integrated power supply arrangement in phase-1 is stuck up due to some contractual issues and urgent need is to resolve this issue at the earliest to get maximum benefit from the integrated power supply system. There is a need to study this model (phase-1 and 2) for replication in other sections where DFC is coming up with its lines. While constructing transmission lines beyond BRC aspect of open access should be paramount considering emerging competitive power market. For construction of transmission line arrangement suggested in aforesaid Para 2 may be explored.
- 6) In the light of long term goals of economy, change in power sector provisions and viability of the system it would be desirable on the part of concerned executive to examine this issue in detail so as to formulate a policy in accordance with changing scenario in power sector. A detail road map of traction energy planning with required policy inputs should be drawn by Railway Board considering large scale electrification in time to come for achieving major savings on traction bill of Indian railways as well as DFC-CIL.

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