

## **JUSTIFICATION**

The 2x3.15 MVA, 33/11 kV Distribution Sub-Station at Turumunga is fed from 220/33 kV GIS Sub-Station, Ranki by 33 kV Turumunga feeder. The length of the 33 kV feeder is around 40 KMs. Due to long length of the line, the voltage profile is very low near Turumunga. So, in order to eradicate the low voltage profile and frequent power interruption of Turumunga and nearby areas a 2x160 MVA and 2x20 MVA, 220/132/33 kV Grid Sub-station at Turumunga is needed. Also, the Grid Sub-station at Turumunga will act as an alternative supply to the distribution sub-stations making the Distribution system stable and more reliable.

At present, 2x12.5+20 MVA, Karanjia Grid Sub-Station is getting supply from Kuchei Grid Sub-Station via Rairangpur Grid Sub-Station and 2x20+40 MVA, Polasponga Grid Sub-Station is getting supply from Karanjia and Joda Grid Sub-Stations. The load on 2x12.5+20 MVA, Karanjia Grid Sub-Station is around 24 MW during peak hours and similarly the load on 2x20+40 MVA, Polasponga Grid Sub-Station is around 95 MW during peak. So, Polasponga Grid is drawing 15 MW from Karanjia Grid Sub-Station and supplying the same power through 132 kV Industrial feeder directly. So during peak hours the load on Polasponga and Karanjia Grid Sub-Stations increases to a very high extent.

The proposed 2x160 MVA and 2x20 MVA, 220/132/33 kV Grid Sub-station at Turumunga will be fed from 400/220 kV Keonjhar PGCIL Grid sub-Station through 220KV D/C line and connected to 132 kV system through 132KV LILO line from 132 KV Palaspanga –Karanjia Line. This proposed Grid Sub-station at Turumunga will share the 15 MW load of 2x12.5+20 MVA, Karanjia Grid Sub-Station and avoid overloading of transformer during normal and N-1 contingency condition. This will also improve the 132 kV voltage profile of Karanjia, Polasponga, Joda and Rairangpur Grid Sub-Stations, making the 132 kV system more reliable.

The proposed 220/132/33 kV Grid Sub-station at Turumunga will feed the following Distribution Sub-Stations,

1. 2x3.15 MVA, Existing Distribution Sub-Stations at Turumunga.
2. 1x3.15+1x1.6 MVA, Existing Distribution Sub-Stations at Patna.

3. 2x3.15 MVA, Proposed Distribution Sub-Stations at Kendeiposi under ODSSP Scheme.
4. 2x3.15 MVA, Upcoming Distribution Sub-Stations at Khireitangri under ODSSP Scheme.
5. 2x3.15 MVA, Proposed Distribution Sub-Stations at Jyotipur under ODSSP Scheme.
6. 2x3.15 MVA, Proposed Distribution Sub-Stations at Machhagarh under ODSSP Scheme.
7. 2x3.15 MVA, Proposed Distribution Sub-Stations at Begunaposi under ODSSP Scheme.

The proposed 220/132/33 kV Grid Sub-station at Turumunga will facilitate the uninterrupted power supply to the villages covers under the Tahasil of Sadar, Patna, Karanjia, Saharapada command area & overall development of Odisha state in general. This will ultimately feed power to these DISCOM consumers with better voltage profile and strengthen the 132 kV network in the district of Keonjhar.

  
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