KERALA STATE ELECTRICITY BOARD LIMITED
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No. D (T&SO)/PSE/SCPSP/2016-17 Date: 02.11.2016

To

Sri. Pardeep Jindal
Chief Engineer
Power System planning & Appraisal II Division
Central Electricity Authority
Sewa Bhavan, R.K. Puram
New Delhi 110066

Sub: 39th standing committee minutes - corrections requested - reg:-

Sir,

The following changes may please be incorporated in the minutes of 39th Standing committee meeting held on 28th – 29th December, 2015 at NRPC Committee room, Katwaria Sarai, New Delhi.

a) 400kV Substation at Kanhirode mentioned in Para No 29.1 is not envisaged in the planned network, since the 400kV Substation proposed in the Kasargode area is considered to be sufficient for catering to the requirements. Similarly 400kV Substation at Ettumanoor is not required in consideration to the proposed 400kV Substation at Kottayam. *Accordingly* **Para No. 29.1 (iv), Para No. 29.1 (v**), *in the minutes may be* ***deleted***.

b) Proposal for 220kV Substation, Neeleswaram mentioned under **item (i)** in **Para 29.2.2** has been cancelled and it is decided to construct a 220kV Substation at Ambalathara, in lieu of the above, by LILO-ing 220kV Kanhirode – Mylatty feeder for the evacuation of 200MW power from the proposed Solar Park. The details mentioned under **Para 29.2.2(i)** may be **modified** as follows:

220kV Substation at Ambalathara, Kasargode Dt

Substation proposed with 220/33kV 2 x 100MVA for evacuation of power from the proposed 200MW Solar Park. Additional 220/110kV, 2 x 200MVA transformers is provided for sub-transmission level connectivity along with four 110kV Line bays.

Connectivity proposed by LILO of existing 220kV Kanhirode – Mylatty feeder.

Downstream 110kV connectivity:

a. 110kV D/c feeder to 110kV Substation, Kanjangad

b. 110kV D/c feeder to 110kV Substation, Cheruvathur

Agenda Items for including in the 40th Standing Committee meeting

The following proposals may kindly be included as agenda points for discussion in the next Standing Committee meeting.

A. 400kV Kasargode (Cheemeni) – Areekode (Kozhikode) D/c Corridor via Wayanad.

400kV Uduppi – Mylatty (Kasargode) – Areekode (Kozhikode) D/c feeder with Quad Moose conductor is an already sanctioned scheme. The above scheme requires two more 400kV line bays at 400kV Substation Areekode (Kozhikode) in addition to the two line bays required for terminating the already sanctioned 400kV Madakathara (Trichur) – Areekode (Kozhikode) D/c feeder and a transformer bay for accommodating the 500MVA transformer, which can be a constraint under the present arrangement in the station. Accordingly it is proposed to interconnect 400kV Kasargode and Kozhikode Substations by utilizing the LILO of 400kV Mysore – Kozhikode (Areekode) D/c feeder as detailed below.

Considering the availability of land and the proposals for establishing a 1320MW thermal station and a 200MW Solar Park at Cheemeni in Kasargode, the new 400kV Substation is proposed to be set up at Cheemeni instead of establishing the same as an extension of the existing 220kV Substation at Mylatty as originally proposed. The 200MW Solar power from Ambalathara Substation will also get pooled at this 400kV Substation. Further it is also proposed that KSEBL may be allowed to carry out the execution of the 400kV Substation at Kasargode along with the 400kV D/c corridor from Kasargode to Areekode as detailed below. The 400kV

corridor from Uduppi to Kasargode can be executed as per the original scheme sanctioned previously.

Considering the above factors, the sanctioned 400kV Uduppi – Kasargode (Mylatty) – Kozhikode scheme may be redesigned as follows:

Part A: **Wayanad – Kasargode Green Power Corridor Project (by KSEBL)**

I. Construction of a 400kV Substation at Wayanad (Kattikulam)

This station is intended as a Switching station for dropping the existing 400kV Mysore – Areekode (Kozhikode) D/c feeder by LILO of both circuits for establishing onward connectivity with the proposed 400kV Substation at Kasargode. The substation is proposed with six 400kV line bays ie. 2+2 for LILO of both circuits of 400kV Mysore – Areekode D/c feeder and two bays for connectivity with 400kV Mylatty Substation through 400kV D/c feeder.

II. Construction of a 400kV Substation at Kasargode (Cheemeni)

This station is intended with four 400kV Line bays and two transformer bays with 2x500MVA 400/220kV ICT's. Additional 220/110kV, 2 x 200MVA transformers is provided for sub-transmission level connectivity along with four 110kV Line bays.

Downstream 220kV connectivity: -

- To Existing 220kV substations at Kanhirode, Thaliparamba, Ambalathara and Mylatty

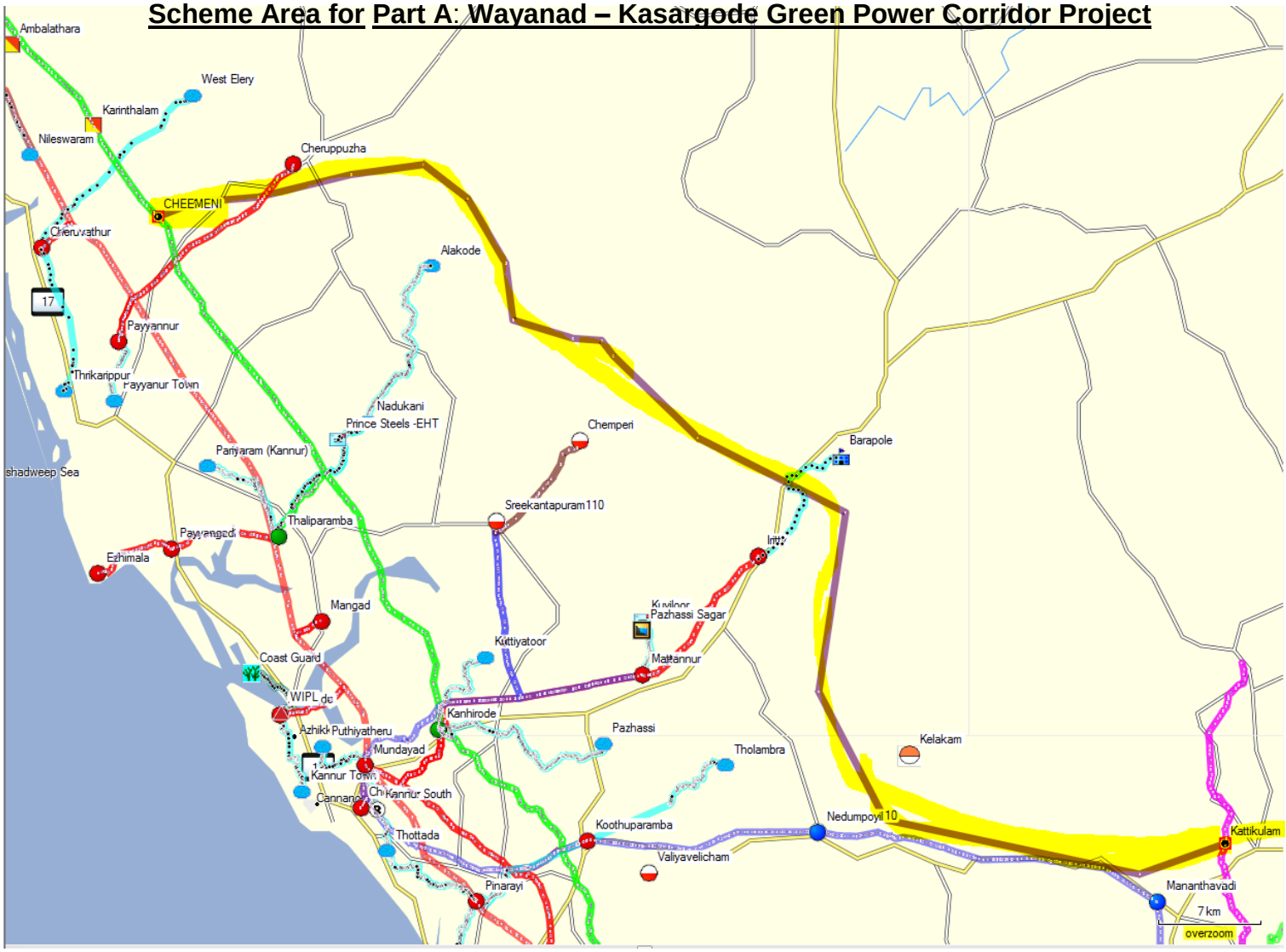
c. Construction of a 400kV Quad Moose / Twin HTLS (ACSS Curlew) D/c feeder from 400kV Switching Station Wayanad (Kattikulam) to 400kV Substation Kasargode (Cheemeni).

Part B: **ISTS Scheme already sanctioned**

d. 400kV Quad D/c feeder from Uduppi to Kasargode

As per the original sanctioned scheme.

Scheme Area for Part A: Wayanad – Kasargode Green Power Corridor Project



B. Additional proposals for Green Energy Corridors

I. Attapaddy Green Power Corridor Project

Attappady area of Palakkad district in Kerala state is energy rich and has an untapped green power potential of about 600 MW (200 MW Wind power potential, 400 MW Solar power potential and numerous small hydro resources). This makes the area ideal for hybrid generation (inter cropping), ensuring power output uniformly throughout the year. Many IPPs such as the Central government owned NHPC are ready to immediately invest in wind and solar generation in this region. M/s NHPC have already executed an MoU with the Government of Kerala for setting up a 83 MW wind project in this region and have even micro sited many wind mill sites. However, at present, this available potential could not be tapped to the full extent due to the absence of a power transmission line for evacuation.

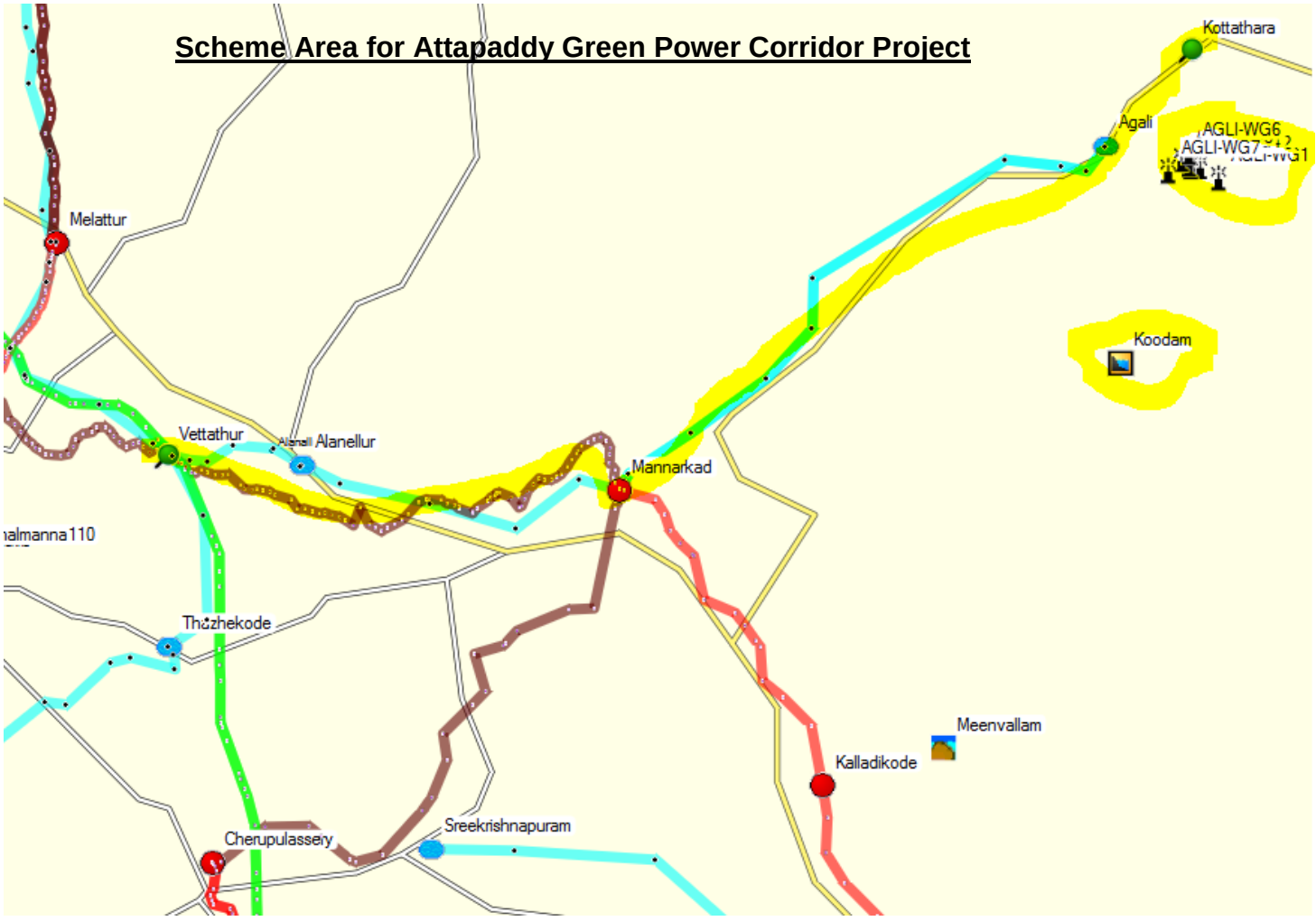
Considering the above, following 220kV corridor is proposed in the area for evacuating the renewable power as above.

Part A- Construction of a 33/220 kV step up substation at Kottathara in Attappady for pooling and picking up power generated from wind, solar and hydel generators in the Attappady region.

Part B- Construction of 220 /110 kV Substation at Vettathur inserted in LILO arrangement in the existing 220 kV Madakathara – Areekode 220kV feeder (linking two ISTS stations at Madakathara (Trichur North) and Kozhikode (Areekode)) where the power picked up from Attappady will be evacuated into the Kerala grid.

Part C- 220/110kV Multi circuit / Multi Voltage line on Multi circuit towers from the proposed 220 kV Substation, Vettathur up to the existing 110 kV Substation Mannarkkad and then extending the 220kV D/c line to 220kV Substation Kottathara. (*The 110 kV D/c line will be between the proposed 220 kV Vettathur Substation and existing 110 kV Substation Mannarkkad*).

Scheme Area for Attapaddy Green Power Corridor Project



II. 220kV Ramakkalmedu Green Power Corridor

The Ramakkalmedu area is estimated to have a tappable wind potential of around 100 MW and solar potential of about 50 MW. Out of the projected wind potential, presently only less than 15 % is utilised through IPPs and the remaining 85% is lying untapped. Also, the Ramakkelmedu area has unpopulated large barren stretches of land without any tree cover receiving sunlight almost throughout the year, making it an ideal site for solar power generation. This makes the area ideal for hybrid generation (Inter cropping), ensuring power output uniformly throughout the year. However the available potential is not tapped due to absence of a power corridor for evacuating the power generated.

Hence KSEBL proposes this project which aims at constructing a reliable power transmission corridor capable of transferring up to 100MW power from the Ramakkalmedu area to Kuyilimala in Idukki district with minimum loss. From Kuyilimala the power is proposed to be evacuated through the 220kV Udumalpet – Idukki Inter-State feeder by LILO of the same at 220kV Substation Kuyilimala.

This project includes

Part A - Construction of a 2x50 MVA, 33/110 kV step up substation at Anakkaramettu (Near Ramakkalmedu) for pooling and picking up power generated from wind and solar generators in the Ramakkelmedu area.

Part B - Construction of 110kV D/c line from Anakkaramettu (near Ramakkalmedu) to 110kV Substation Nedumkandam.

Part C - Construction of 2 nos 110kV feeder bays at 110kV Nedumkandam Substation.

Part D - Construction of 110 kV D/c line from Kattappana to Kuyilimala along the right of way of existing 66 kV S/c line.

Part E - Construction of a 220/110 kV substation with 2nos 220/110kV 50 MVA Transformers and 2 nos 220 kV feeder bays at Kuyilimala. LILO of 220kV Udumalpet – Idukki S/c feeder at 220kV Substation Kuyilimala.

Scheme Area for Ramakkalmedu Green Power Corridor

C. Implementation of 220kV Madakkathara- Malaparamba-Nallalam D/c feeder

Proposal forwarded by us vide letter no D(T&SO)/PSE/SCPSP/2016-17/413 date 01.09.2016 requesting sanction for the following:

a) Providing two additional 220kV bays by CTU in the upcoming 2000 MW HVDC station at Madakathara for implementation of 220kV Madakkathara – Malaparamba – Nallalam D/c feeder.

b) Installation of 2x315 MVA, 400/220kV transformer in the proposed HVDC station for providing 220kV connectivity as above.

sd/-

Director

(Transmission & System Operation)