

# »» SG 4: Green Energy Corridors and Grid Management

## Implementation Status- GEC FC

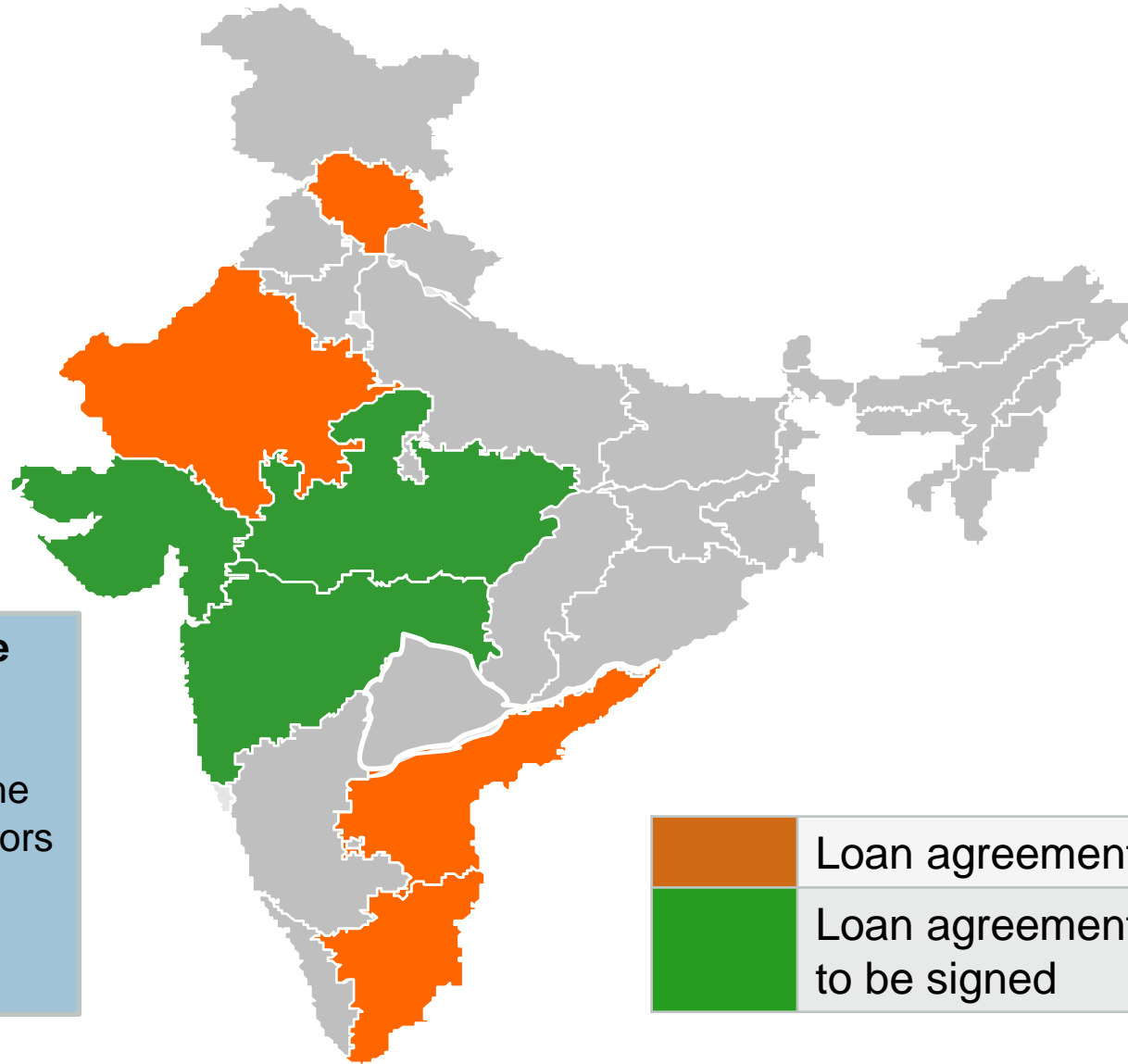
19 May 2016

New Delhi

Bank aus Verantwortung

**KFW**

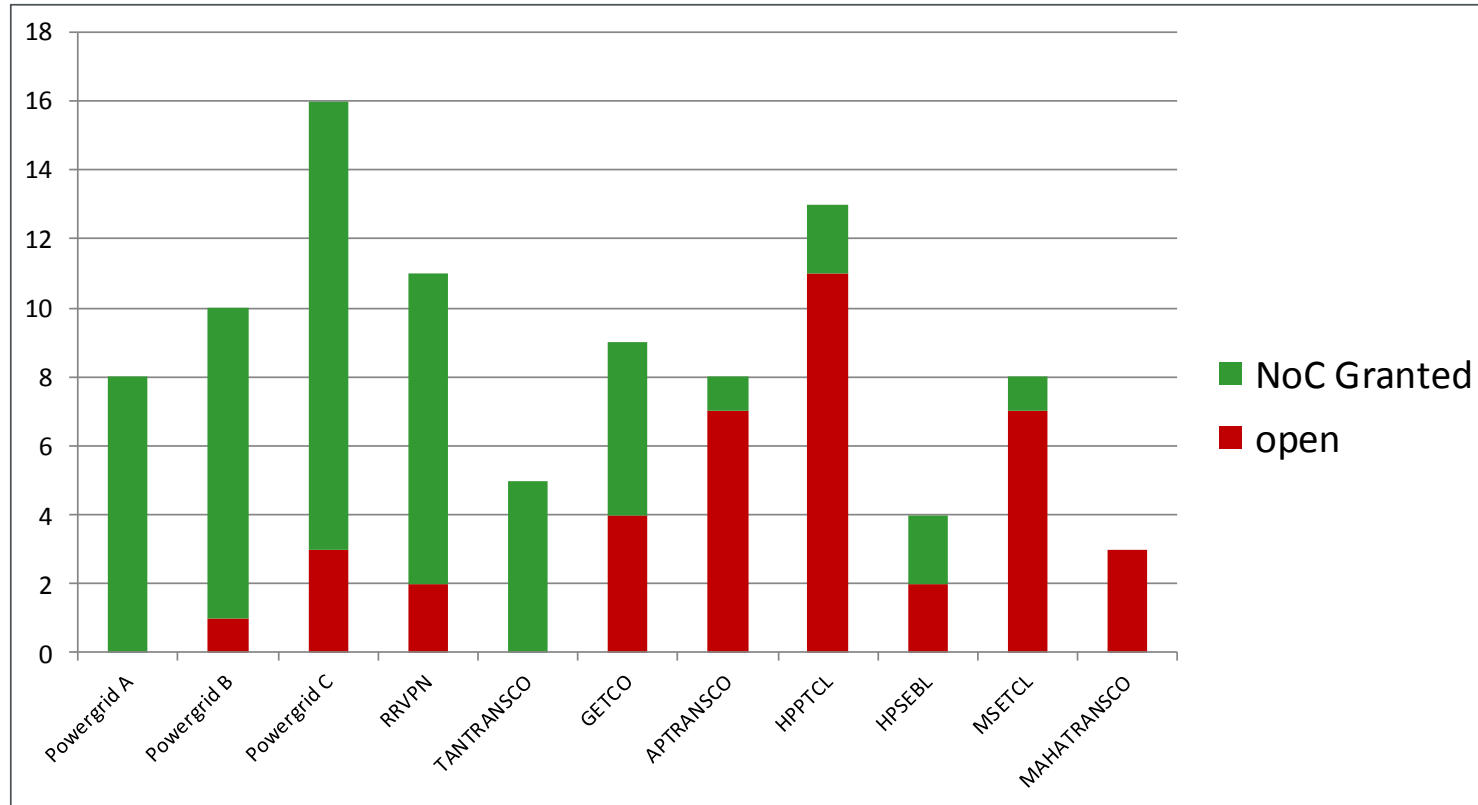
## »» Intra State Projects in GEC planned to be financed



In last two years, **five Loan Agreements** totaling 750 Million Euros for financing the Green Energy Corridors in India have been signed.

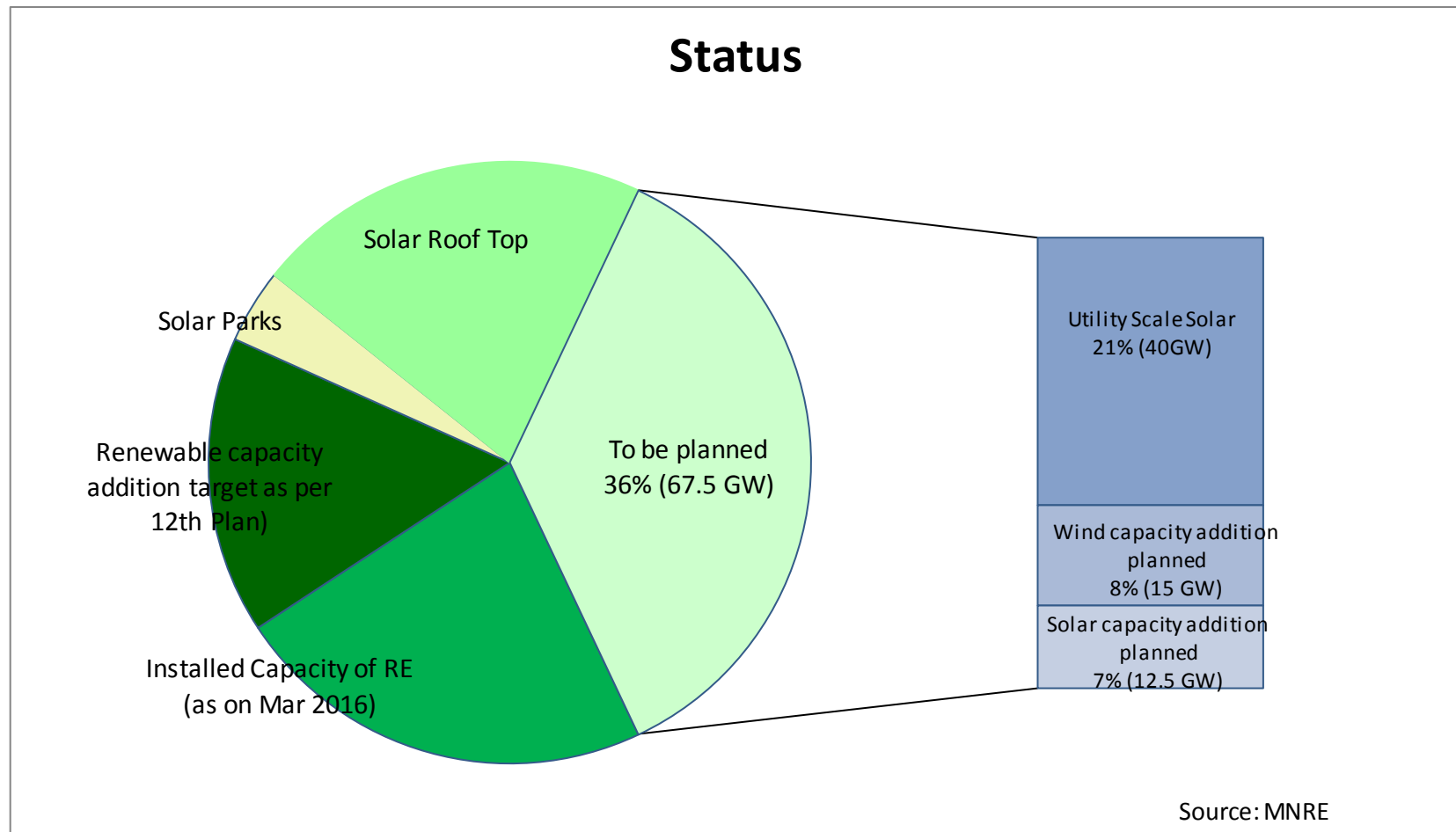
# »» Progress of Implementation

## Tender Documents: Status



Procurement workshop conducted by IGEF for all partners on 25 April on KFW Procurement guidelines

# »» Transmission planning for target of 175 GW



## »» GEC : Way ahead

- › To conduct studies in cooperation with MNRE, MoP and CEA to assess the financing requirements at intra State level
  - › To prepare the terms of reference with support from POWERGRID
- › Storage solutions, grid balancing issues should be addressed together with the development of transmission infrastructure
  - › Pump Storage projects can be planned
  - › Battery Storage options can be explored
- › Clarity required on the availability of NCEF funds for next phases of intra state projects



## »» GEC in the context of India's smart grid vision

Paving the way for a smart transmission and distribution network

The expansion of the green corridors presents one of the **most ambitious network infrastructure projects** in the world that will support increasing the RE generation capacities



- Increasing the **states' balancing capabilities** from a technical perspective is of high priority
- GEC ensure that a future smart grid will be able to efficiently **handle fluctuations in load**



- Market incentives need to be designed to **translate the flexibility needs into market prices** and leverage the technical potential
- Development of an **efficient regional balancing market** is key





## »» GEC Components Financed under Signed Loan Agreements

# »» Inter State and Intra State Components in Rajasthan

## PGCIL DPR-A

P-A.1: 57 km 400 kV Ajmer New – Ajmer (RVPN) – TW01

P-A.2: 25 km 400 kV Chittorgarh New – Chittorgarh (RVPN) – TW01

P-A.3: Substation Chittorgarh 765/400 kV (SS01)

P-A.4: Substation Ajmer 765/400 kV (SS02)

## PGCIL DPR-B

P-B.1: 199 km 756 kV Chittorgarh New – Ajmer New (TW01-TW03-765kV)

P-B.2: 285 km 765 kV Banaskanta - Chittorgarh New (TW04-TW07)

P-B.3: Extens. Substation Chittorgarh 765/400 kV (SS01)

P-A.4: Substation Banaskanta 765/400 kV (SS02)

## RVPN DPR-A

R-A.1: 130 km 400 kV Jaisalmer 2 – Barmer

R-A.2: 140 km 400 kV at Jaisalmer 2- Bhinmal

R-A.3: 50 km 400 kV at Jaisalmer2-Akal

R-A.4: 70 km 220 kV Undoo – Pokaran

R-A.5: 15 km 220 kV Kolayat-Gajner + 10km - 132 kV LILO Kolayat –Bajju

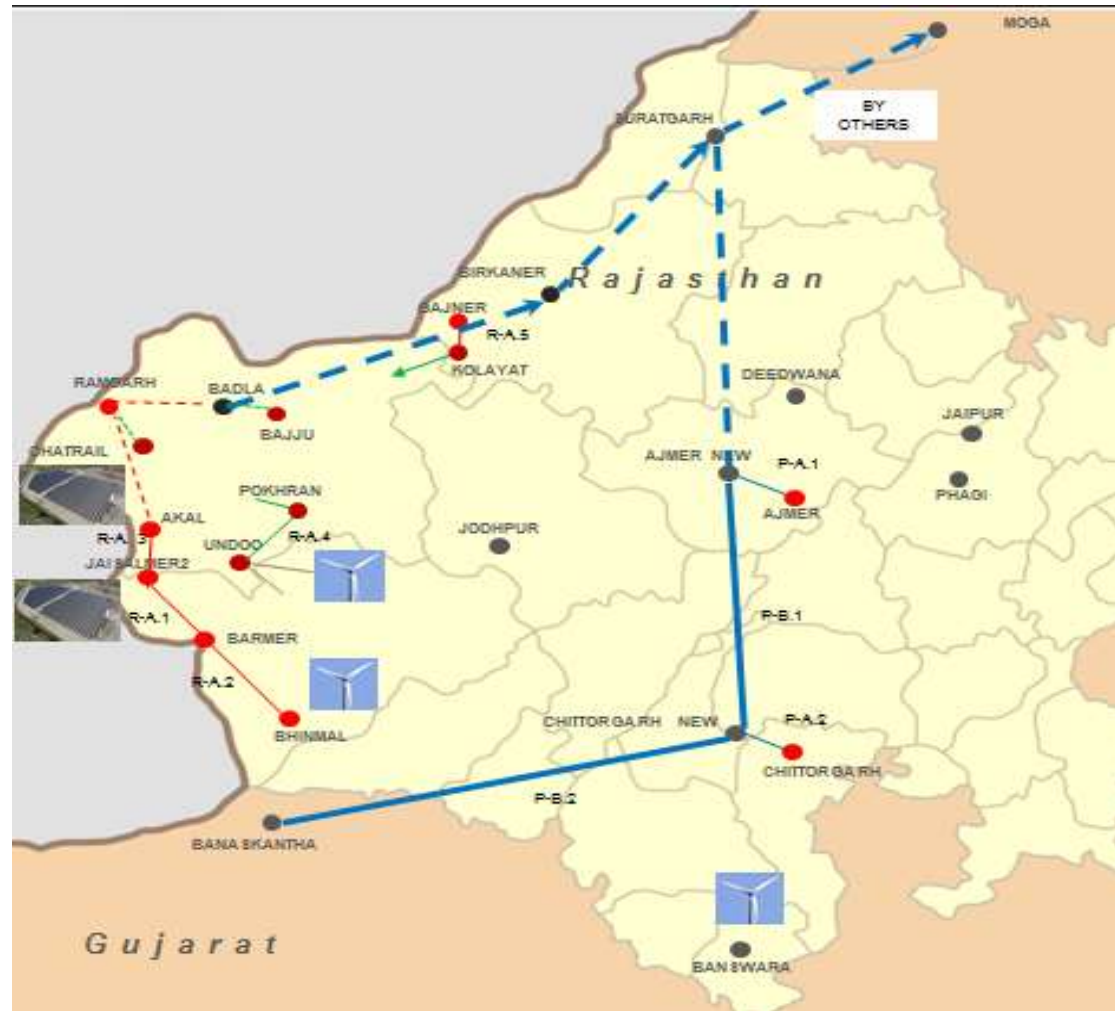
Grid Substation JAISALMER2 400/220kV

Grid Substation UNDOO 220/132 kV

Grid Substation KOLAYAT 220/132 kV

Grid Substation CHHATRAIL 220/132 KV

Grid Substation BAJJU 220/312 KV





## »» Inter State Components in Gujarat

### PGCIL DPR-B

P-B.5: 100 km 400 kV Banaskanta  
– Sankhari

### PGCIL DPR-C

P-C.1: 310 km 765 kV Bhuj Pool –  
Banaskanta (TW01-TW05)



## »» Inter State and Intra State Components in Tamil Nadu

### PGCIL DPR-A

P-A.5: 54 km 400 kV Tirunelveli – Tuticorin;  
Line 1

P-A.6: 56 km 400 kV Tirunelveli – Tuticorin;  
Line 2

### TANTR DPR-A

Thennampatty 400/230-110 kV GSS

T-A.1: 56 km 400 kV Thenampatty - Kayathar

T-A.3: 37 km 400 kV Kayathar - Kovilpatti

T-A.5: 180 km 400kV Rasipalayam - Singarapet

T-A.6.1: 55 km 230 kV Kayathar – Tuticorin

T-A.6.2: 55 km 230 kV Veeranam - Tirunelveli

T-A.6.3: 25km 230 kV Veeranam - Kodikurichi

T-A.6.4: 65 km 230 kV Ingur - Arasur

T-A.6.5: 95 km 230 kV Arasur - (PGCIL) Gobi

T-A.6.6: 180 km 230 kV Cuddalore- Neyveli

Various Bay extensions & augmentation of Transfo capacity

### TANTR DPR-B

T-B.2.1: 100 km 400 kV Vagarai - Rasipalayam

T-B.2.2: 40 km 400 kV Vagarai - Udumalpet (PGCIL)

T-B.2.3: 90 km 400 kV Salem - Singarapet



# »» Intra State project- Andhra Pradesh

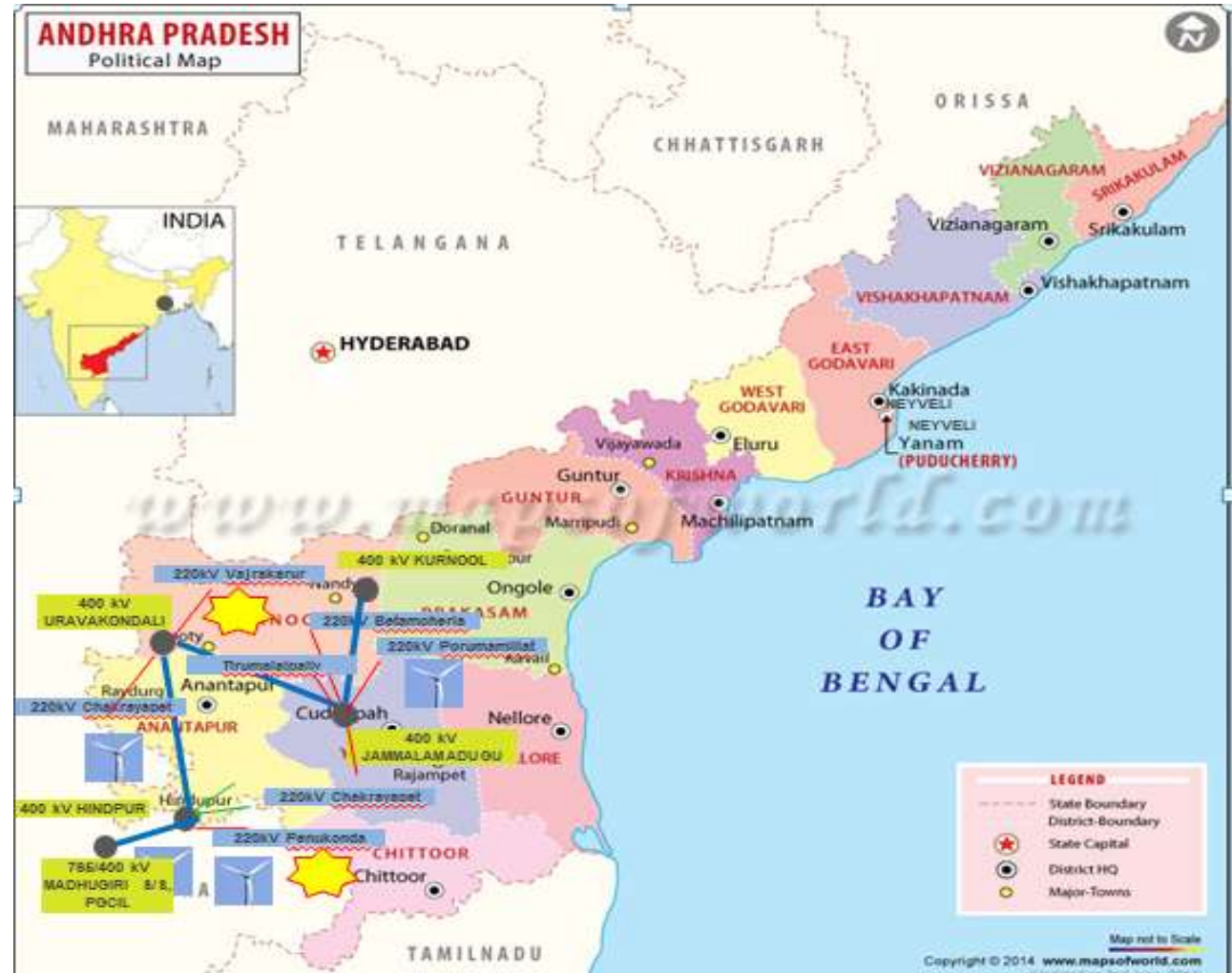
## APTRANSCO

### Phase 1 works

- 400/220 /132 kV Jammalamadugu S/S
- 400/220 kV Uravakonda S/S
- 400kV Jammalm.—Kurnool T/L,, 125 km
- 400 kV Jammalm- Uravakonda T/L, 110 km
- 220 kV Jammalm.- Tirumalaipally, 17 km
- 220 kV Jammalm.- Betamcheria, 68 km
- 220 kV Jammalm.- Chakraypet
- 220 kV Jammalm.-Porumamilla
- 220/132 kV interconnectivities, 125 km

### Phase 2 works

- 400 /220kV Hindupur S/S
- 400 kV Hindupur-Uravakonda T/L, 130 km
- 400 kV Hindupur –Madhugiri S/S (PGCIL), 40km
- 400 kV Bay extension Madhugiri
- 220 kV Hindupur –Penukonda, 50km
- 220 kV Hindupur –Pampanur, 90 km
- 220/132 kV interconnectivity lines ,30 km



## »» Intra State Components in Himachal Pradesh

### HPPTCL

1. GSS 66/220 kV, Sunda sub station with 66 kV D/C line from Sunda to Andhra
2. Construction of 22/132 kV sub station in the yard of Tangnu Romai HEP:
3. Construction 132 kV D/C line TangnuRomai HEP to Sunda.
4. GSS 132/220 kV, 2x100 MVA GIS sub station at Dehan +220 kV D/C Transmission Line (55 Kms) to 400/220 kV sub station PGCIL at Hamirpur
5. Construction of 33/132 kV, 31.5 MVA sub station in the yard of Rupin HEP:
6. Construction of 132 kV D/C line between 33/132 kV sub station at Rupin HEP and 132/220 kV sub station at Sunda:
7. Construction of 33/220 kV, 50/63 MVA sub station Heling
8. Providing additional 132/220 kV, 100 MVA Transformer at 132/220 kV, 100 MVA GIS sub station at Charor
9. Providing additional 33/132 kV, 31.5 MVA Transformer at 33/132 kV, 31.5 MVA GIS sub station at Pandoh in Distt. Mandi
10. Construction of 33/132 kV, 2x31.5 MVA GIS sub station near Malana-II (100 MW) power house in Distt. Kullu.
11. Construction of 33/132 kV, 2x31.5 MVA GIS sub station Sarsadi by LILO of one circuit of 132 kV Barsaini-Charor D/C line
12. Providing additional 400/220 kV, 1x315 MVA transformer in the 400/220 kV sub station at Gumma[Pragatinagar]
13. Construction of 33 kV GIS switching Station at Palchan in District Kullu





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## »» One Project: Eight Implementing Agencies

