Annexure - 5

1. Asset Numbering Methodology

For network assets (33 KV to Pole/Feeder pillar) such as pole, feeder pillar, tower, distribution transformer, ACB and Stations unique number will be given.

Those unique number will be maintained in system against the pre-defined assets and the same number will be painted at site on each assets.

Numbering format or logic will be generated for respective assets.

i. Asset Numbering Process

Flow Chat Asset Numbering Process

ii. Asset Numbering Activity Matrix

	Process	Responsibility Desk
1	Initially asset numbering logic will be finalized.	Back office
2	Printout of hard copy maps with all the assets mapped on it will be taken.	Back office
3	Then all the assets will be numbered as per logic on the map.	Back office
4	Visual QC will be done to verify no duplicates number are given and no assets are left out for numbering.	Back office
5	Simultaneously Yellow base of pre-defined area will be painted at site on which numbers will be written.	Field team
6	Then asset numbers will be painted on site above the yellow base in black color.	Field team
7	Random QC will be done to check if the numbers are painted properly and correctly.	Field team
8	If the numbers are painted properly and correctly then the same will be updated in system	Back office
9	If the number are not painted properly and correctly the same will be informed to the Vendor.	Back office
10	Correction and repainting will be done	Field team
11	After rectification the numbers will be updated in system	Back office

iii. Pole/Feeder Pillar/Service Pillar/Meter Box Numbering Methodology

The unique asset numbering of the utility points i.e. Poles, Feeder Pillars, Service Pillars and Meter rooms is vital for consumer and network connectivity reference in field as well as in GIS system also. The numbering of these assets helps in locating all connected objects to these assets, in field.

To track the no. of poles/feeder pillars/ service pillars from where the electricity is distributed to the consumers will be uniquely numbered and same number will be painted on poles. The same will be mapped in GIS to monitor the geographical location of poles and direct the crew members for resolving the service related complaints as well as asset management.

In existing system, pole number is assigned based on current electric connectivity, which is prone to change very often. So each time when network connectivity will change, the pole no of that feeder will change and repainting of pole no is required at field, which is very tedious and expensive task. So to avoid these circumstances each pole will be assigned a unique number based on their geographical location while considering Division, Sub division boundary, Voltage level and main roads.

The methodology for numbering is given below:

Pole numbering Rules

a. Pole numbering and road coding rules

Considering the thickness of the Poles used in TPCODL (formerly CESU), numbers will be written in three lines on pole and it will be divided by two horizontal lines.

Frist line will provide the information of voltage level as per below-

For LT/FP/SP poles – “LT” will be written

For HT pole / 11 kV – “HT” will be written

For Tower / 33 kV – “EHT” will be written

Second line will provide the information of Division No, Sub division No, corresponding Section No and Road code as per below-

Frist two digits – Division No

Third digit – Sub Division No

Fourth digit- Section No

Below mentioned are proposed division no,sub division no & Section no for pole no assigning.

Circle	Division		Sub Division	Section		Proposed no. for Division and Sub-Division
Name	Name	Number	Number	Name	Number	(First two digit- Division and last digit - Sub DivisionSection)
BHUBANESWAR I	BCDD-I,BBSR	I	I	Unit-VI	I	**01 1 1**
				Power House - II	II	**01 1 2**
				Delta	III	**01 1 3**
				Power House - I	IV	**01 1 4**
				Brit Colony	V	**01 1 5**
			II	_	_	**01 2 X**
			III	_	_	**01 3 X**
	BCDD-II,BBSR	II	I	_	_	**02 1 X**
			II	_	_	**02 2 X**
			III	_	_	**02 3 X**
	BED, BBSR	III	I	_	_	**03 1 X**
			II	_	_	**03 2 X**
	N.E.D, Nimapara	IV	I	_	_	**04 1 X**
			II	_	_	**04 2 X**
			III	_	_	**04 3 X**
BHUBANESWAR II	P.E.D, Puri	V	I	_	_	**05 1 X**
			II	_	_	**05 2 X**
			III	_	_	**05 3 X**
			IV	_	_	**05 4 X**
	KED, Khurda	VI	I	_	_	**06 1 X**
			II	_	_	**06 2 X**
			III	_	_	**06 3 X**
			IV	_	_	**06 4 X**
			V	_	_	**06 5 X**
	BED, Balugaon	VII	I	_	_	**07 1 X**
			II	_	_	**07 2 X**
	NED, Nayagarh	VIII	I	_	_	**08 1 X**
			II	_	_	**08 2 X**
			III	_	_	**08 3 X**
			IV	_	_	**08 4 X**
CUTTACK	CDD-I, Cuttack	IX	I	_	_	**09 1 X**
			III	_	_	**09 3 X**

			IV	_	_	**09 4 X**
			VI	_	_	**09 6 X**
	CDD No.II, Cuttack	X	I	_	_	**10 1 X**
			II	_	_	**10 2 X**
			V	_	_	**10 3 X**
	CED, Cuttack	XI	I	_	_	**11 1 X**
			II	_	_	**11 2 X**
			III	_	_	**11 3 X**
			IV	_	_	**11 4 X**
	AED, Athagarh	XII	I	_	_	**12 1 X**
			II	_	_	**12 2 X**
	S.E.D, Salipur	XIII	I	_	_	**13 1 X**
			II	_	_	**13 2 X**
			III	_	_	**13 3 X**
PARADEEP	KED No.I, Kendrapara	XIV	I	_	_	**14 1 X**
			II	_	_	**14 2 X**
			III	_	_	**14 3 X**
			IV	_	_	**14 4 X**
	KED No.II, Marshaghai	XV	I	_	_	**15 1 X**
			II	_	_	**15 2 X**
	PED, Paradeep	XVI	I	_	_	**16 1 X**
			II	_	_	**16 2 X**
			III	_	_	**16 3 X**
	JED, Jagatsinghpur	XVII	I	_	_	**17 1 X**
			II	_	_	**17 2 X**
			III	_	_	**17 3 X**
DHENKANAL	DED, Dhenkanal	XVIII	I	_	_	**18 1 X**
			II	_	_	**18 2 X**
			III	_	_	**18 3 X**
			IV	_	_	**18 4 X**
	A.E.D, Angul	XIX	I	_	_	**19 1 X**
			II	_	_	**19 2 X**
			III	_	_	**19 3 X**
	T.E.D, Chainpal	XX	I	_	_	**20 1 X**
			II	_	_	**20 2 X**
			III	_	_	**20 3 X**
			IV	_	_	**20 4 X**

After division Sub Division and Section number there will be Hyphen **" – "** (this will work as a separator between division sub-division section number and road code) and after that one/two or three digit will be the **Road Code.**

While painting and entering in system there will be no space between division sub-division & section number.

Roads will be coded on the basis of road width 15 ft. or above and any prominent/known road. Road width with 15ft. and above or any prominent road will come under major Road and the road with width less than 15ft. will come under Minor Road. e.g., on each pole in second line, it shall be numbered as

LT0111-**1**…. LT0111-**2**…..LT0111-**100** onwards.

Third Line will provide the information of pole no.

Wherever LT Poles/FP /SP and HVDS/HT Poles are going parallel then road code for LT Poles/FP /SP and HVDS/HT Poles remain same but numbering is done separately.

b. Numbering New Poles

Poles of the all coded road will be numbered from 1 onwards in last line e.g.

For LT Pole /FP/SP will be numbered as (mentioned in bold)

LT 0111-1	,	LT 0111-1	,	LT 0111-1	onwards
1		**2**		**3**	

Similarly, For HVDS/HT Pole

HT 0111-1	,	HT 0111-1	,	HT 0111-1	onwards
1		**2**		**3**	

Similarly, For Towers

EHT 0111-1	,	EHT 0111-1	,	EHT 0111-1	onwards
1		**2**		**3**	

c. Coding for T-offs

Case 1: Any T-off from any pole is depicted as " / ". In electrical distribution network, T-off is a point from where another branch is taken to cater different areas. e.g.

For LT Pole/FP/SP, Ist pole onwards from T-off shall be numbered as (mentioned in bold)

LT 0111-1	,	LT 0111-1	,	LT 0111-1	onwards
1/1		**1/2**		**1/ 3**	

Similarly, For HVDS/HT Pole

HT 0111-1	,	HT 0111-1	,	HT 0111-1	onwards
1/1		**1/2**		**1/3**	

Similarly, For Towers

EHT 0111-1	,	EHT 0111-1	,	EHT 0111-1	onwards
1/1		**1/2**		**1/3**	

Case 2: In case two T-off from one pole are there then two different T-off will be numbered separately. e.g.

For LT Pole/FP/SP, Ist pole onwards from **1st T-off** shall be numbered as (mentioned in bold)

LT 0111-1	,	LT 0111-1	,	LT 0111-1	onwards
1/1/1		**1/1/2**		**1/1/ 3**	

Similarly, For HVDS/HT Pole

HT 0111-1	,	HT 0111-1	,	HT 0111-1	onwards
1/1/1		**1/1/2**		**1/1/3**	

Similarly, For Towers

EHT 0111-1	,	EHT 0111-1	,	EHT 0111-1	onwards
1/1/1		**1/1/2**		**1/1/3**	

Ist Pole onwards from **2nd T-off** shall be numbered as (mentioned in bold)

LT 0111-1	,	LT 0111-1	,	LT 0111-1	onwards
1/2/1		**1/2/2**		**1/2/ 3**	

Similarly, For HVDS/HT Pole

HT 0111-1	,	HT 0111-1	,	HT 0111-1	onwards
1/2/1		**1/2/2**		**1/2/3**	

Similarly, For Towers

EHT 0111-1	,	EHT 0111-1	,	EHT 0111-1	onwards
1/2/1		**1/2/2**		**1/2/3**	

d. Numbering New poles between existing Poles

In case of installation of new pole(s) between 2 existing poles then new pole shall be suffixed with Alphabet starting with “A” onwards. e.g.

For LT Pole/FP/SP, new pole is installed between pole no. 1 & 2 then new pole is numbered as (mentioned in bold)

LT 0111-1 ,	LT 0111-1 ,	LT 0111-1	onwards
1/1	**1/1A**	1/ 2	

Similarly, For HVDS/HT Pole

HT 0111-1 ,	HT 0111-1 ,	HT 0111-1	onwards
1/1	**1/1A**	1/ 2	

e. Numbering extension of poles for feeding new areas

In case of extension of poles for feeding new areas, continuous numbering can be given if possible, and in case it is not possible then same is suffixed with A, B, C as per Rule no 4 or till new road code is generated as per Rule no 1.

E.g. for LT Pole/FP/SP, continuous numbering shall be (mentioned in bold)

LT 0111-1 ,	LT 0111-1 ,	LT 0111-1	LT 0111-1 ,	LT 0111-1
1/1	1/2	1/ 3	**1/ 4**	**1/ 5**

Similarly, For HVDS/HT Pole

HT 0111-1 ,	HT 0111-1 ,	HT 0111-1 ,	HT 0111-1 ,	HT 0111-1
1/1	1/2	1/ 3	**1/ 4**	**1/ 5**

OR new road code is generated (mentioned in bold)

LT 0111-**2** ,	LT 0111-**2** ,	LT 0111-**2** ,	LT 0111-**2** ,	LT 0111-**2**
1/1	1/2	1/ 3	1/ 4	1/ 5

Similarly, For HVDS/HT Pole

HT 0111-**2** ,	HT 0111-**2** ,	HT 0111-**2** ,	HT 0111-**2** ,	HT 0111-**2**
1/1	1/2	1/ 3	1/ 4	1/ 5

f. Pole Painting Specifications

i. Painting shall be carried out at 5.5 ft height of poles from ground level and maintain consistency for all poles.

ii. Pole numbers are written in two lines in terms of numerator and denominator on PCC poles or where pole width is sufficient, while on rail pole pole no shall be painted in three line.

iii. Paint the number with Yellow background with black color number.

iv. Number painted on poles should not be tilted, distorted and spread over etc.

v. Number should be easily readable from minimum 20 ft. distance.

vi. Base Box shall be straight and Number shall be written with stencils with dimensions as mentioned below:

LT
0111-1
1

HT
0111-1
2

EHT
0111-1
3

Pole Numbering Proposal

LT0111-1/1
HT0111-1/2
EHT0111-1/3

Pole no updation in system

Voltage Level

DivisionSubdivisionSection-Roadcode

Pole No

0111-First two digit of division no then last two digit subdivision no. and section no.

iv. Sub Station Numbering Methodology

For 33 kV & 11 kV Station

Painting on the main gate/Wall/Pole/Fencing for Plinth Mounted and Pole Mounted Stations

- Name of the substation
- Capacity of DTs or PTs
- DT1 & DT2 or PT1 & PT2

Figure DTC painting pattern - for Pole Mounted

Figure DTC Painting Pattern

Figure 1 33/11KV Station Painting Pattern

Painting on equipment (Transformer and Breaker)

- Manufacturer Serial No
- Manufacturer Name
- Capacity

Figure Transformer painting pattern

Figure Breaker Painting Pattern

As per requirement all the Transformer and Breaker has to be painted. But at present condition all the equipment at site are live and charged and for painting Transformer and Breaker we have to take proper shut down. Taking shutdown every time will be practically not possible and carrying out the painting without taking proper shutdown will be a serious safety concern.

So presently for the live transformer and breaker asset number will be updated in the system and for proper asset management the same number will be synced with SAP.

This numbering logic and painting will be properly applicable for the new equipment. All the new transformer and breaker before realizing from the store has to be painted in the above mentioned manner and the same number will be updated in the GIS system.

v. Asset Numbering Checks and validation

The primary objectives of involving Checks and Validations for Asset numbering are to ensure that all predefined assets for numbering are numbered properly with proper logic so that it meets most of the project specifications and acceptance criteria envisaged for the project. It provides the project team with a standard set of criteria to follow during the pilot and full-scale project, and ensures a minimum amount of data rework is necessary as the project evolves.

At each specific stage Checks are required, starting from number allocation to the assets till punching of attributes in system.

There are chances of mistakes during the activity. There fore checks will be performed on the following:

- No duplicate number for any specific individual assets.
- Proper logic to be followed while assigning the numbering of assets.
- While painting the asset numbers at site proper color coding will be followed.
- While painting the asset numbers at site proper font and size will be followed.
- During entering the data in system precautions will be taken.
- System generated checks will be there to find out the duplicate numbers if any.