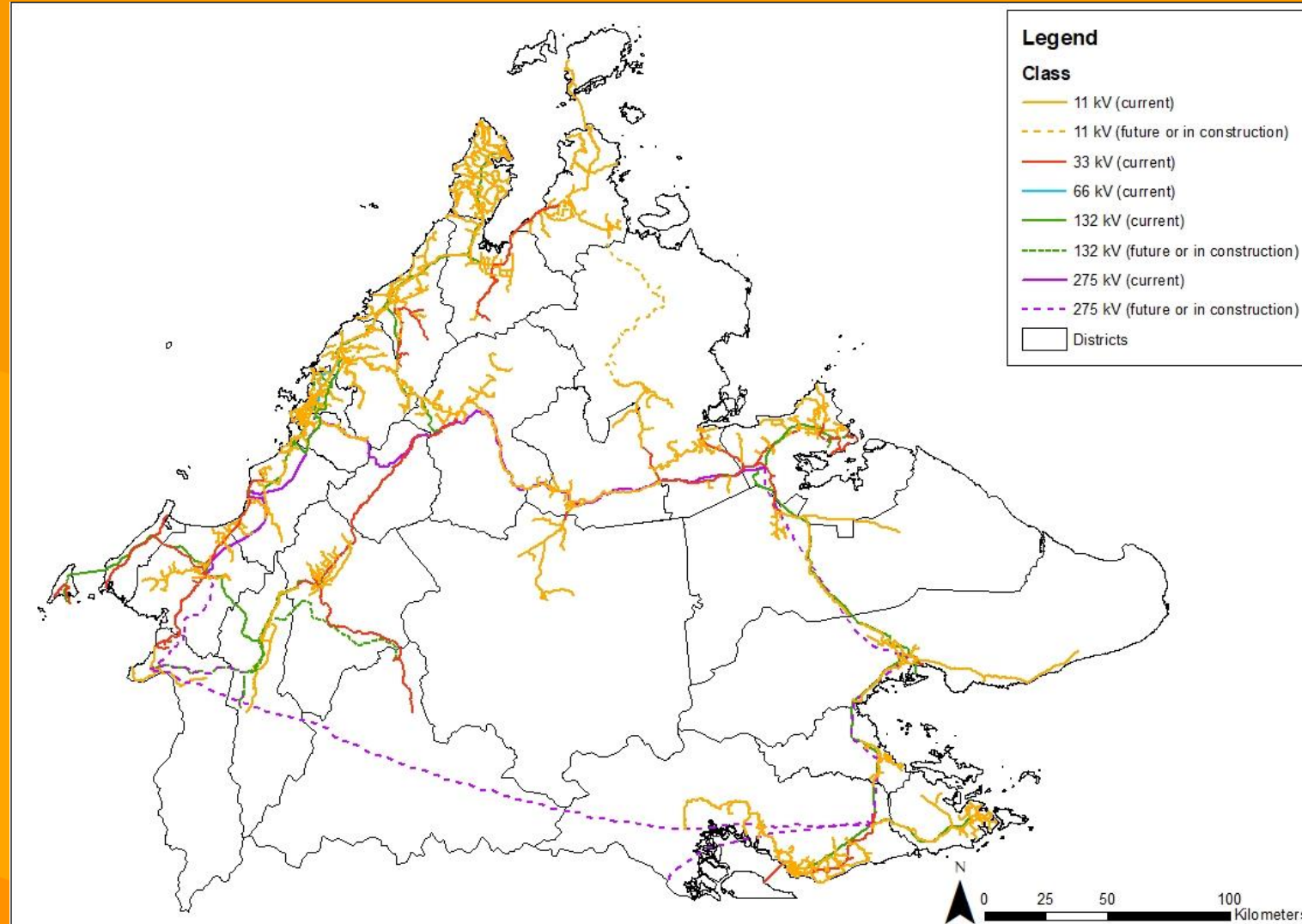


Digitisation of Transmission Grid – Progress and Methodology Update

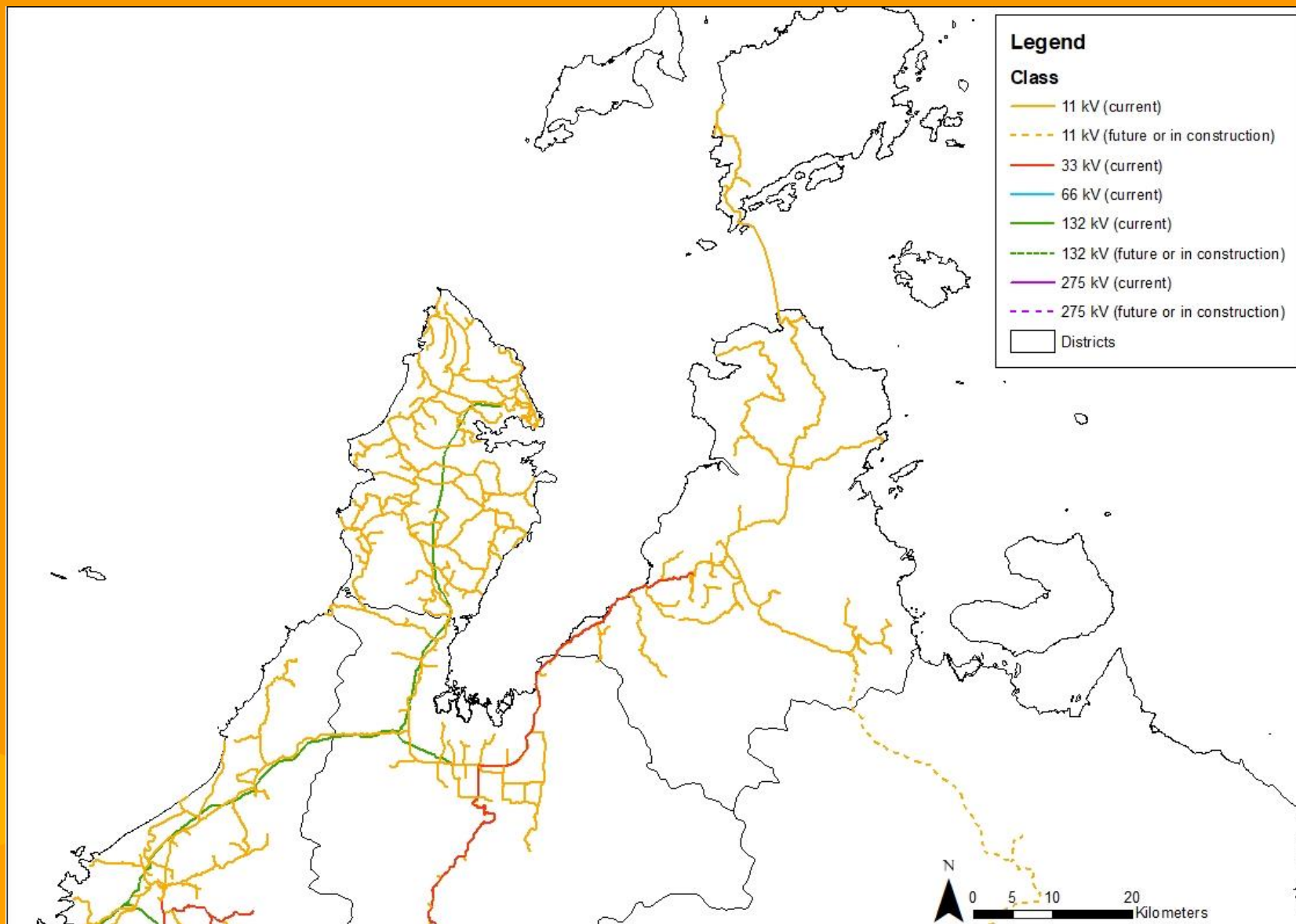
by Hugo Lim
Forever Sabah
12-05-2022

Progress Update – Digitised Transmission Grid (as of 12-05-2022)

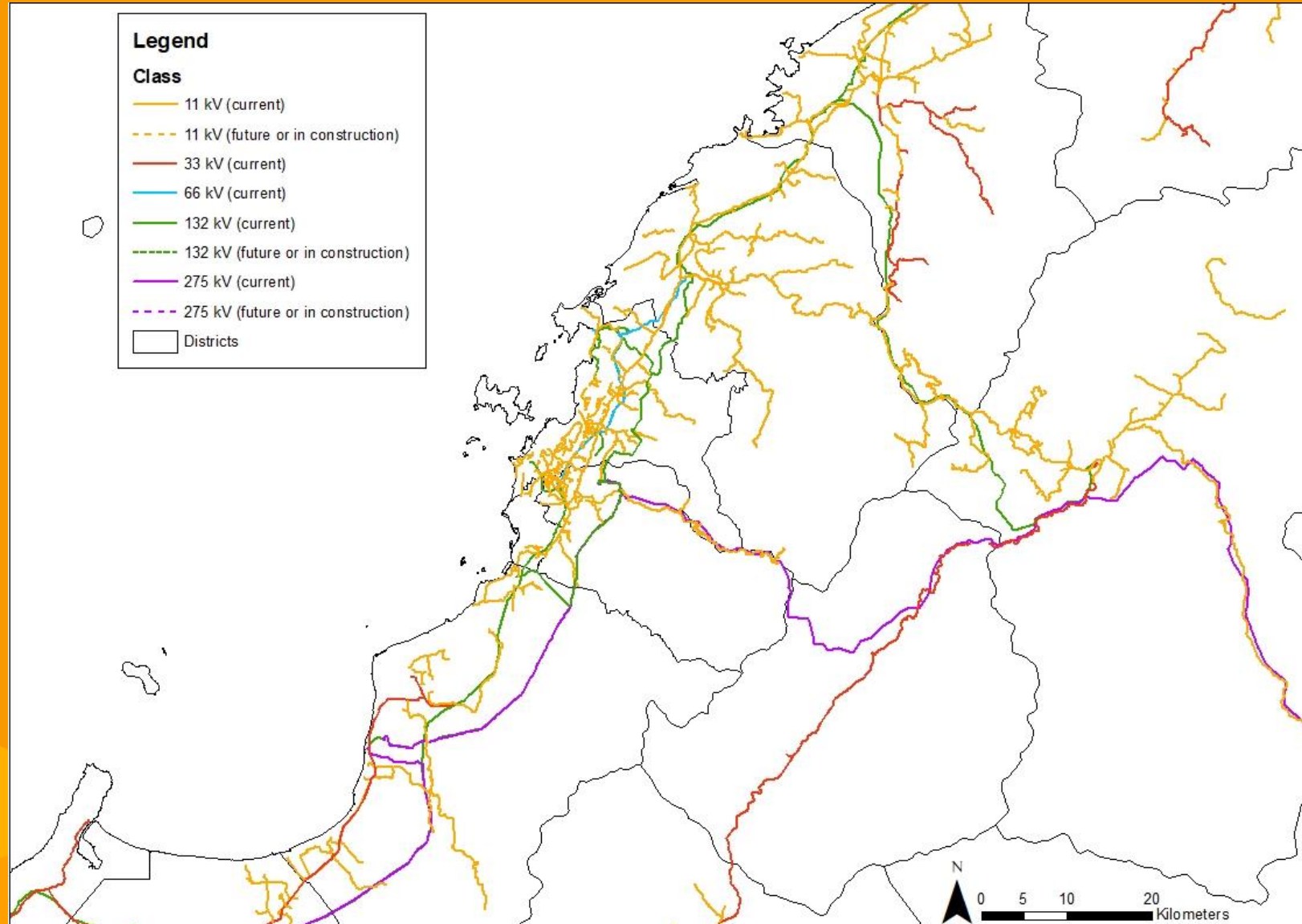


Class	Length (km)
11 kV (current)	4,206.65
11 kV (future or in construction)	107.02
33 kV (current)	893.14
66 kV (current)	35.27
132 kV (current)	1063.65
132 kV (future or in construction)	187.68
275 kV (current)	347.78
275 kV (future or in construction)	698.62
Total	7539.81

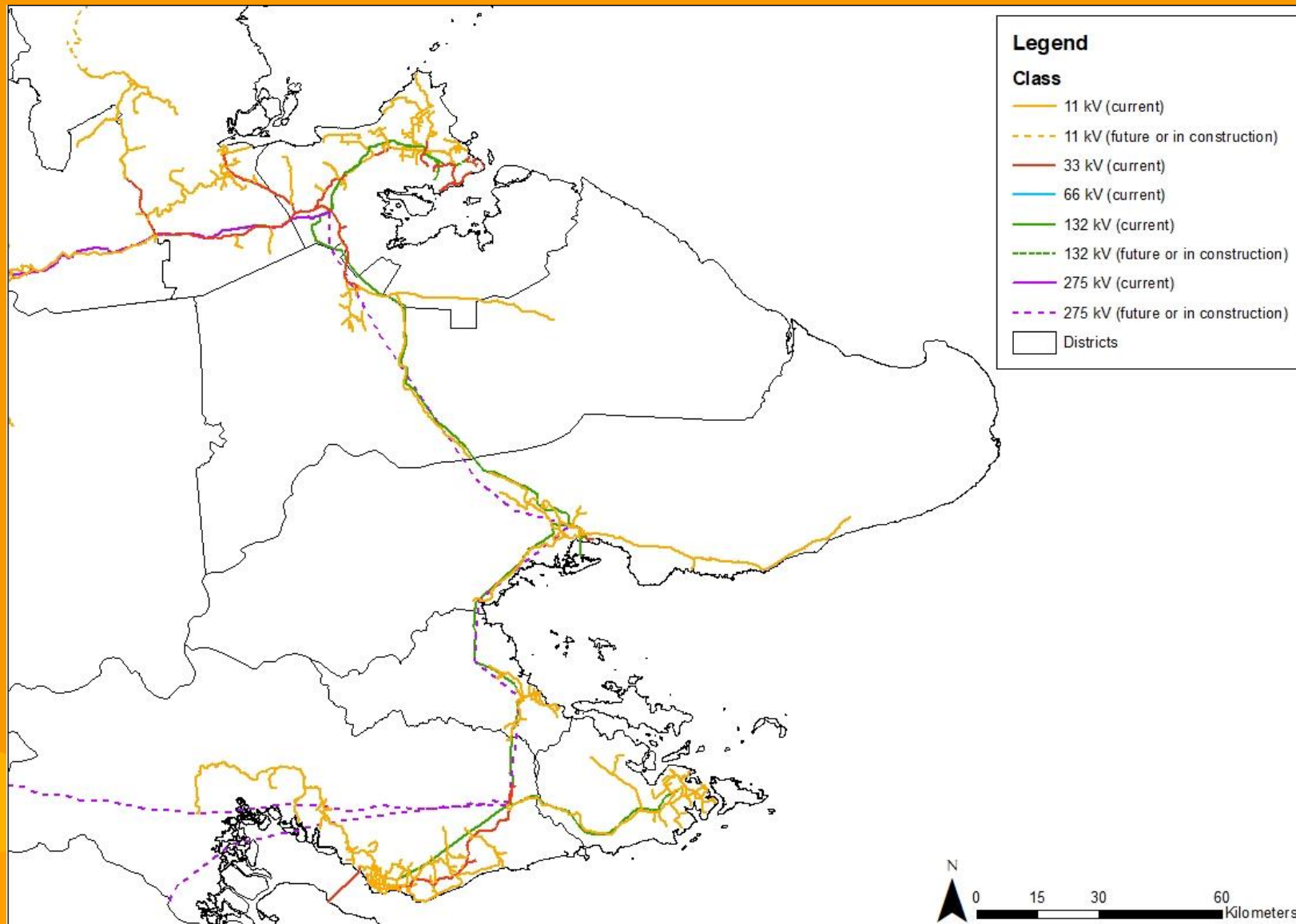
Progress Update – Digitised Transmission Grid (as of 12-05-2022) – Northern area



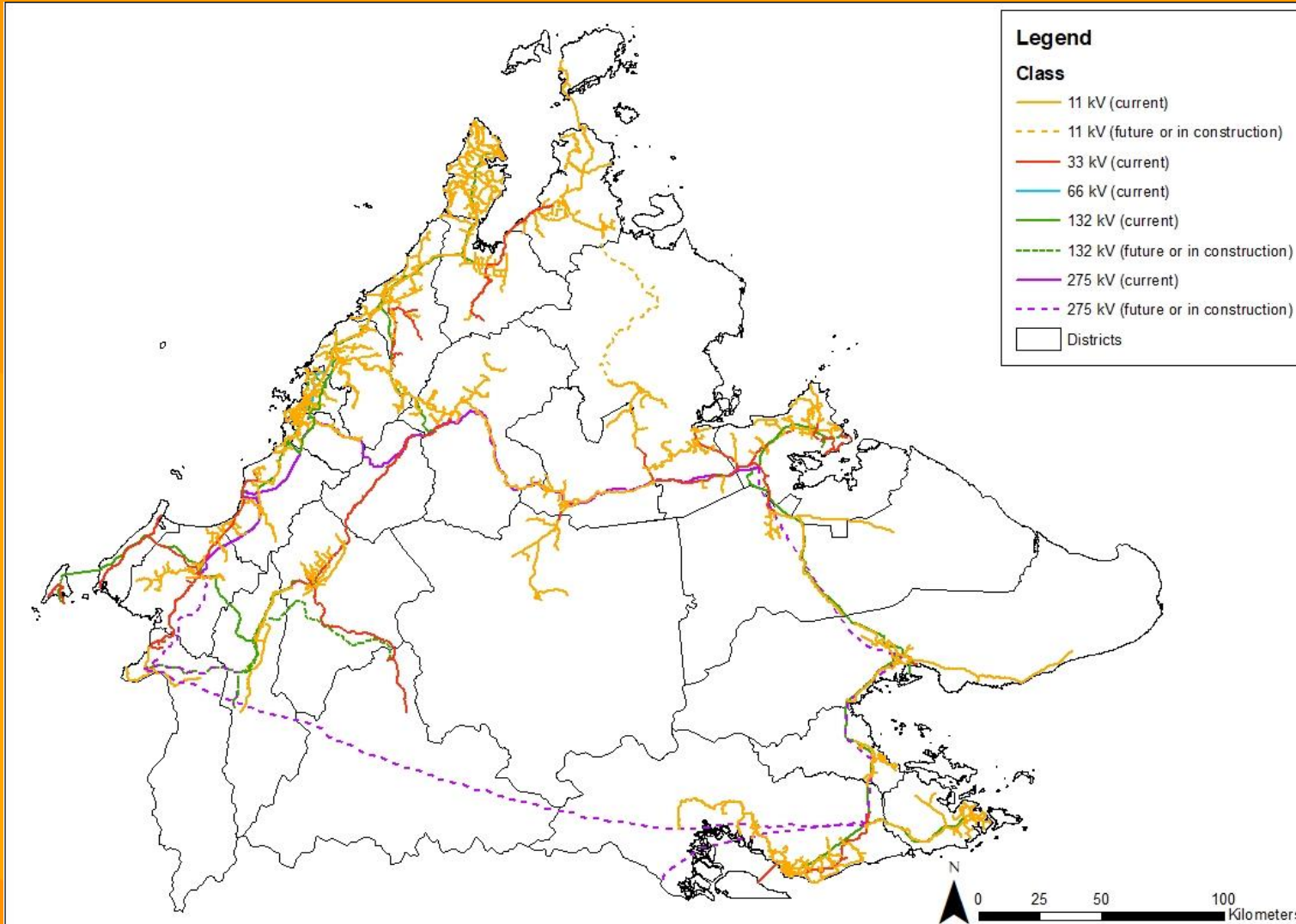
Progress Update – Digitised Transmission Grid (as of 12-05-2022) – West coast



Progress Update – Digitised Transmission Grid (as of 12-05-2022) – East coast



Progress Update – Digitised Transmission Grid (as of 12-05-2022)



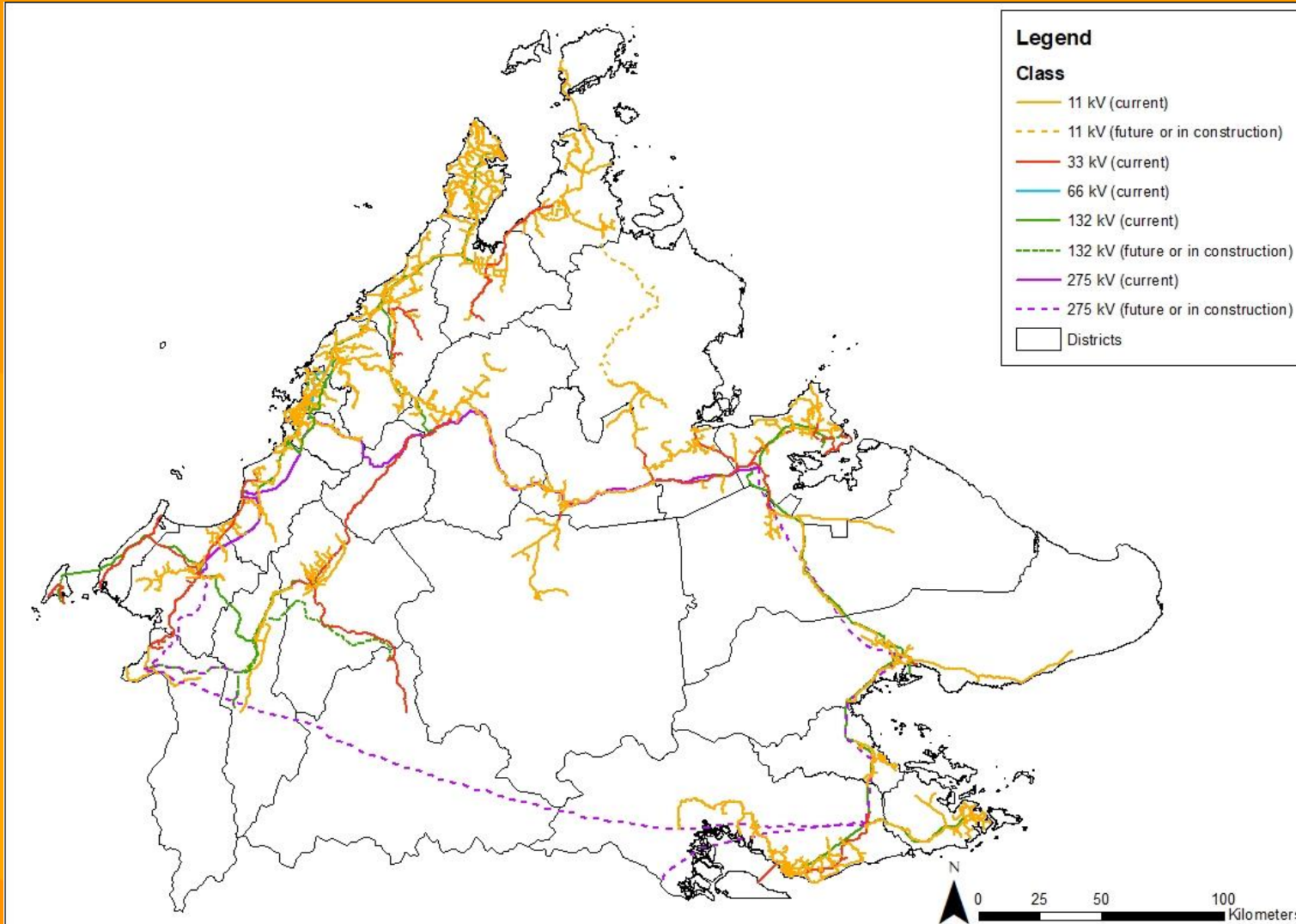
Progress

- A total of 7,539 km of transmission grid has been digitised.
- Digitisation mainly focused on Aerial Bundle Cable and Overhead Lines of 11kV, 33kV, 66kV, 132kV, 275kV.
- Currently mainly focusing on clusters of transmission grid lines in cities/towns i.e. Kota Kinabalu, Sandakan, Kudat etc.

Limitation

- Less focus on Underground or/and Submarine transmission cable/grid lines.
- No digitisation on transmission grid lines of voltage lesser than 11kV e.g. 0.432kv etc.
- Lack of updated/clear imagery in remote areas i.e. Beluran, Nabawan etc.

Progress Update – Methodology



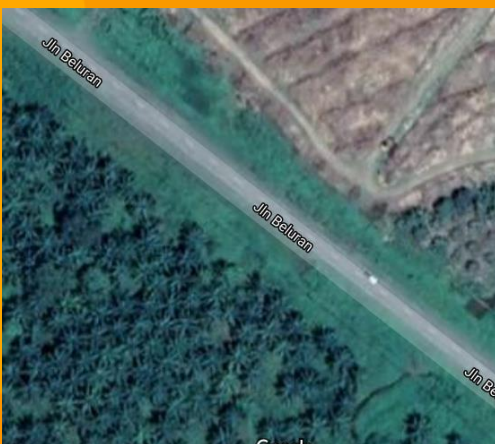
Methodology

1. Identification and digitization of transmission grid lines and voltage classes.
2. Mainly based on Google Street View, Google Earth, and data from SESB; and Sabah Structure Plan 2033, published reports i.e. Sabah Electricity Supply Industry Outlook 2015.

Identification processes:

1. Presence of transmission line on Google Earth or additional data from SESB.
2. Identification of connecting points (i.e. incoming transmission, switching distribution station or substations).
3. Tracing transmission line, to ensure each line connects to the correct points.
4. Classification of voltage levels based on the number of insulator discs per phase; and connecting points.

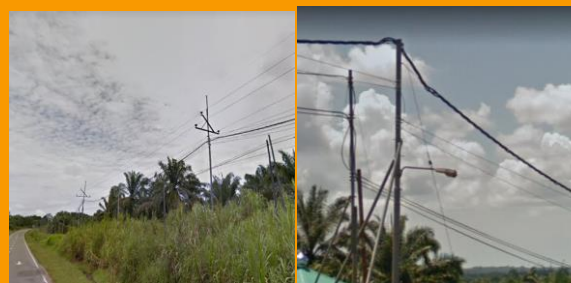
1. Presence of transmission line



2. Identification of connecting points



3. Tracing transmission grid lines



4. Number of insulator discs per phase (and disc types)

