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Poster title: Modelling of energy demand for e-penetration technologies in the transport sector :In the context of Ethiopia.

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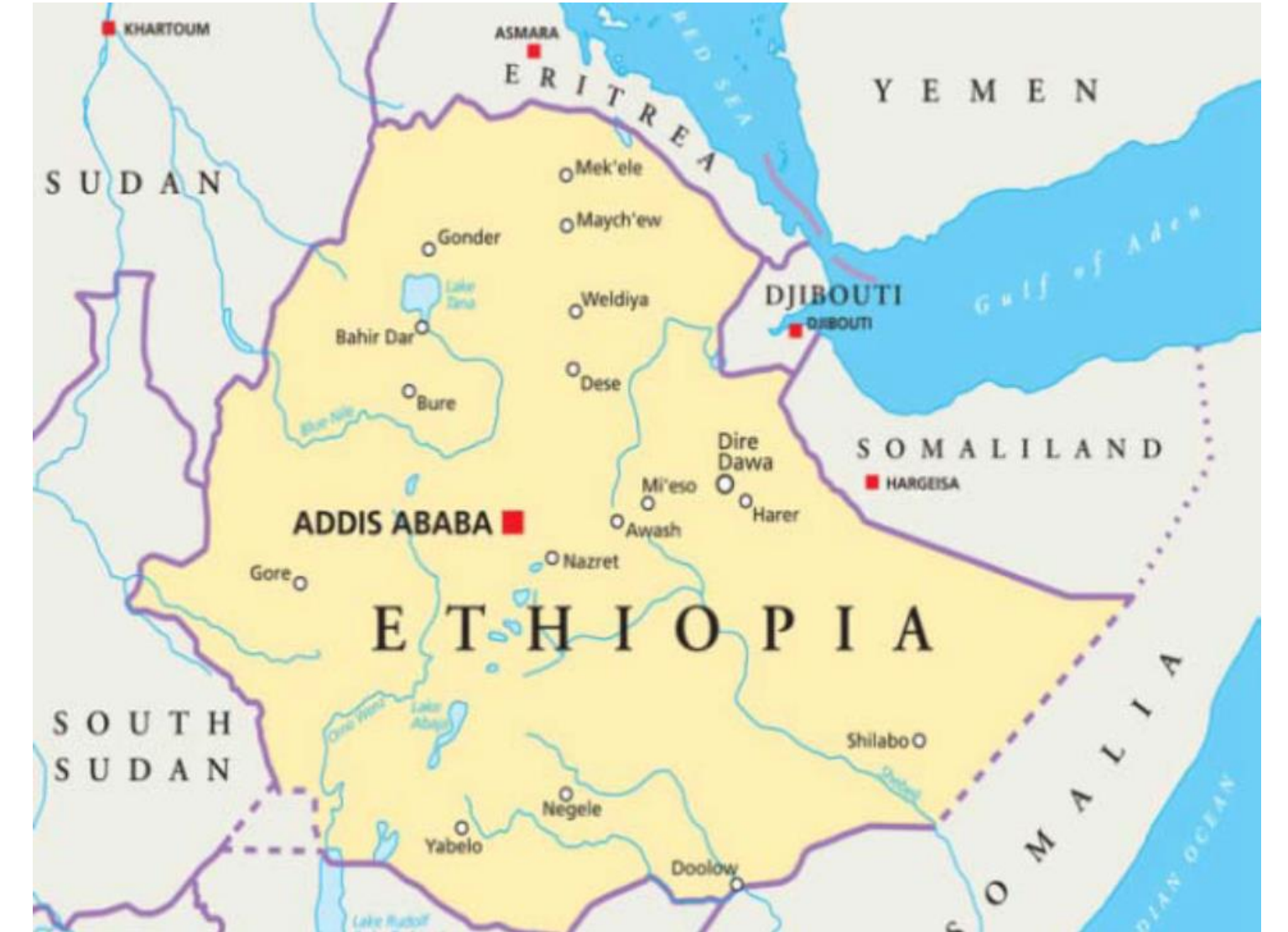
1. Context

Socio economic profile of Ethiopia:

- Ethiopia, Landlocked country in the horn of Africa
- Total area 1.13 million square km.
- Population estimated (2020): 117.87 million
- Urban population: 24.7527 million, (21%)
- Rural population: 93.118 million (79%)
- GDP: \$925 USD
- As of July 03/2023, the transport sector of Ethiopia heavily depends on petroleum oils with an import of 3.72 billion cubic meters per annum of petroleum for 72.60 billion Birr with a sky rocketed price for every year.
- A switch to e-technologies at a penetration level of 20% increment in the coming 2050 years level of 60% can improve the energy security of the country.

2. Aim

The aim of this study is to investigate the impact of switching of e-vehicles in the final energy demand to the context of Ethiopian transport sector.



3. Methods & Scenarios

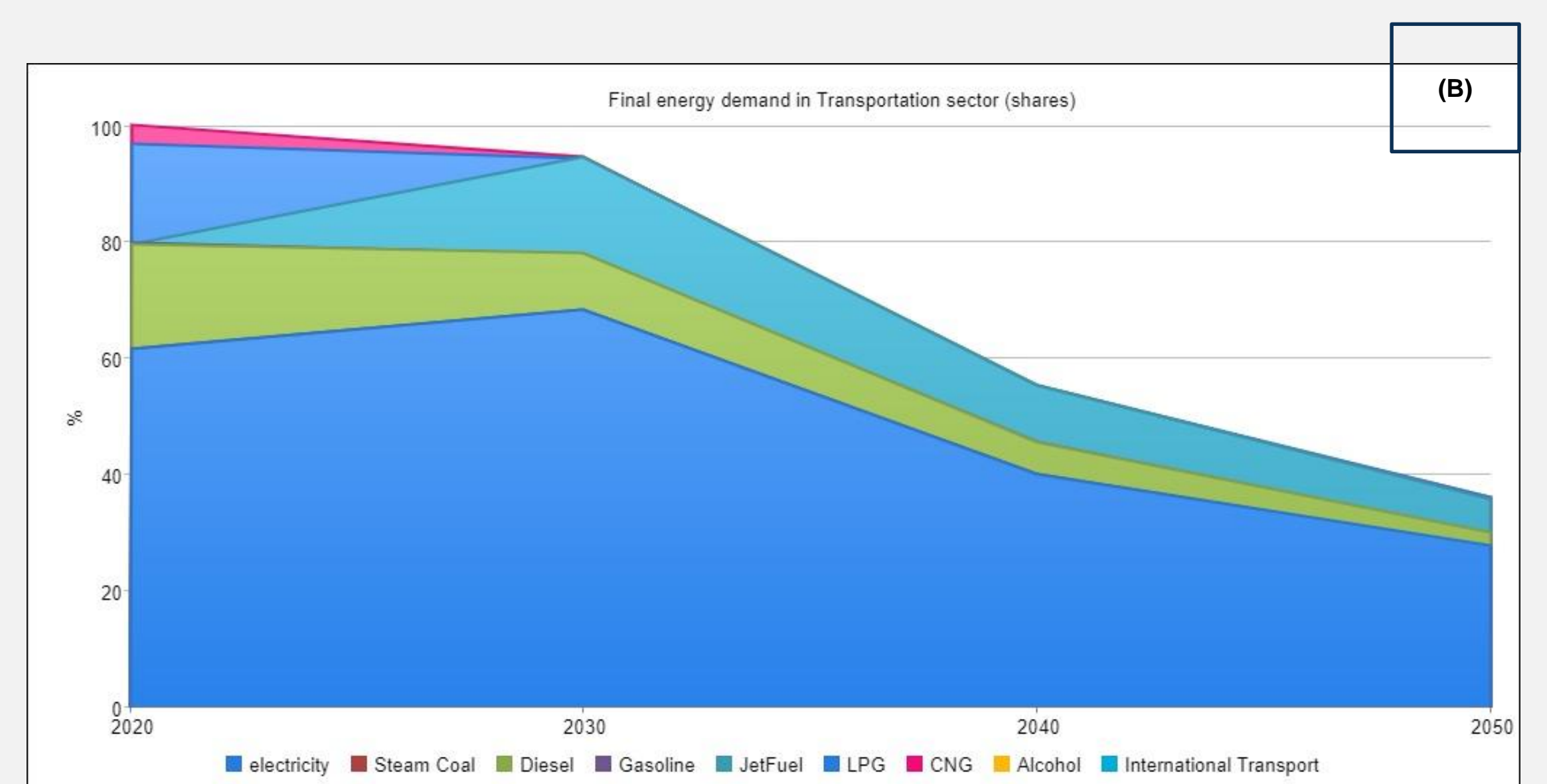
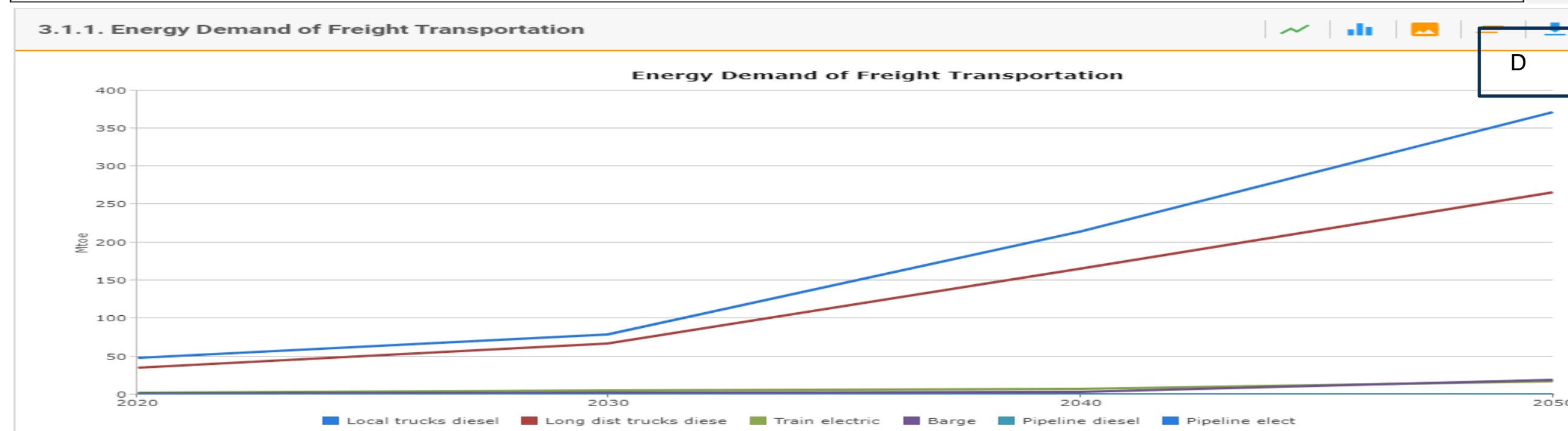
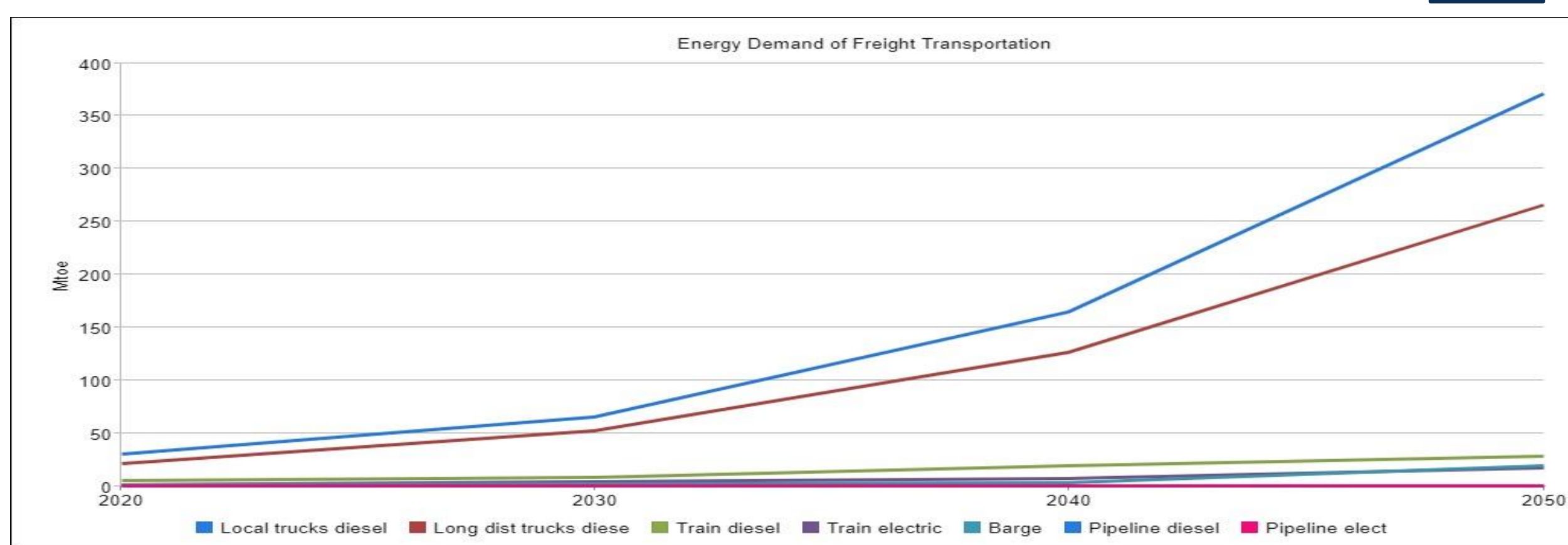
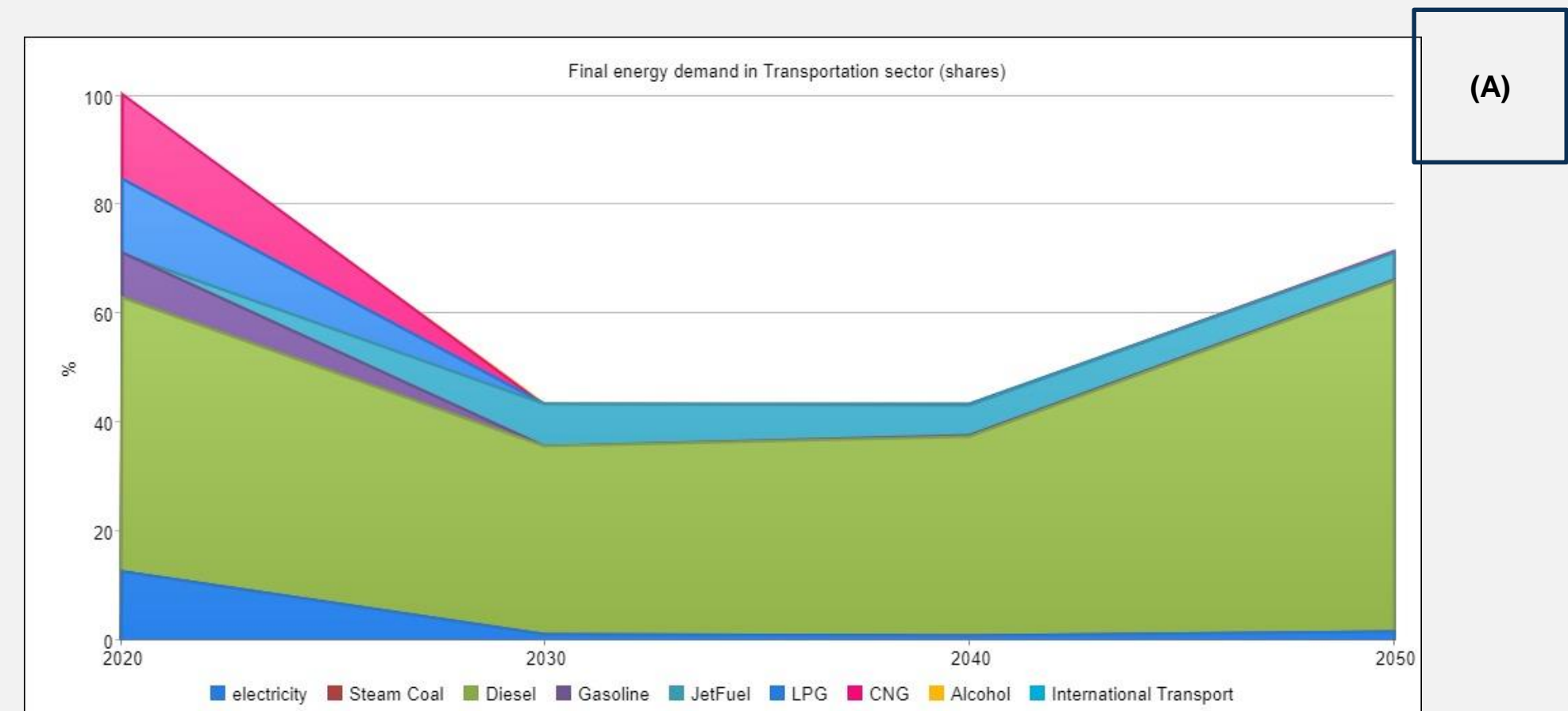
Scenarios:

- The current energy source of the transport sector of country is mainly depends on Petroleum fuels. However, the price of petroleum highly affect the transport sectors as the country doesn't have its own production of petroleum energy supply chains.
- As a result, penetration of additional technologies like e-vehicle by 50% by the next 2050's, could be a good strategy as a viable Technology mix to satisfy the demands of the transport sector.

Assumptions:

The potential of petroleum fuels in the future will be diminishing, and could not satisfy the transport sector energy demand. A switch to e-technologies at a penetration level of 15% increment in every decade to the level of 60% can improve the energy security of the country.

4. Results



5. Policy insights, conclusions and future work

- Here in, the energy demand modeling were carried out in the transport sector of Ethiopia. we can realize that there is an increase in energy demand by 10% (average) when we switch the e-vehicles by 60% by the next 2050 as compared to the BAU scenario.
- Moreover, the energy demand share of by the mobility activity by bus and car takes a huge share of (48%) as compared to freight and international transport.
- As a policy insight, the result which was been obtained from this modeling probably have some discrepancy with the reality as there is little well organized data policy on the transport sector of Ethiopia.
- To promote the e-vehicle in the Ethiopian transport sector, the charging infrastructure should be the Ethiopian government as the first of the first priority to adopt at good penetration level.
- Massive deployment of e-vehicles in the public transport and freight activities.

6. References

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