Electrification of Public Transport in Bhutan

Tsophu lake in Bhutan, Mt. Jitchu Drake 6989masl
Outline

- Brief background
- Why Electric Vehicles?
- Challenges
- Policy Interventions
- Way Forward
Kingdom of Bhutan
Did you know?

- The first and one of the only two carbon neutral countries in the world. Bhutan emits 3.8 million tonnes of CO$_2$e but sequester 9.4 million tonnes (3X)

- Offsets CO$_2$e in India through export of green and renewable hydro electricity [2,334 MW installed capacity generating a total energy of 10,822.29 million units annually. Total potential of 33,000MW]

- Committed to remain carbon neutral for all time [since 2009]

- 72% of land under forest cover [the Constitution mandates 60%]

- 51% under protected parks, reserves, and biological corridors – the largest in Asia

- Among the top 10 biodiversity hotspots of the world

- “Gross National Happiness” - guiding development philosophy
Why EV?

- Source of electricity in Bhutan is 100% green and renewable - abundant hydropower resources

- “High-Value, Low Volume” tourism policy
  (USD 200 SDF tariff per person per day+)

- Staying committed to Bhutan’s pledge to remain carbon neutral for all time

- Reduce dependency fossil fuel import towards a green, climate-friendly economy

*Picture: EV taxi drivers volunteering for the Bhutan Red Cross Society*
Challenges

- Transport sector contributes to 45% of the total GHG emissions
- ICE vehicle number has increased 487% since 2000
- EVs comprise only 4% of the total vehicle count
- Import of fossil fuel worth Nu.8.4 billion (US$106 million) in 2021, accounting for 60% of the total hydropower export (15% of GDP)
- Perception Survey 2019:
  i. Attitudes, misperceptions, and low level of technical knowledge in the LEV market
  ii. High up-front costs of EV, dependent on subsidy
  iii. Inadequate electric vehicle charging infrastructure
Policy Interventions

- EV project under the Prime Minister’s Office (highest leadership support)
- Free charging at all EVCS
- 300 EV taxis – pilot project
  - 20% or US$5500 direct cash subsidy to eligible taxi drivers
  - 70% collateral free loan through Bank of Bhutan, for extended period of 7 years
  - Only 10% upfront cost for taxi drivers
  - 70% working capital to EV suppliers, with the government as guarantor
- Zero tax on import of EV and EVCS
- Charging infrastructure network in all 20 districts
- All government vehicles to be EVs
- Unique green registration plates and “zero emission” stickers for EVs
- Dedicated EV taxi service counters at urban centers including airports
- EV curriculum for technicians through technical training institutes
- Piloting electric buses for Thimphu city
- R&D in assembly and manufacturing of EV and EV components
Way forward

- EV Roadmap 2035 – *EV to replace 70% of annual vehicle sales by 2035*

- Low Emission Development Strategy 2021

- National Surface Transport Policy 2021

Picture: A suspension bridge in Punakha, Bhutan
Pandemic delays one of the biggest environmental projects—replacing taxis by electric vehicles

EVs might remain in slow lane due to lack of charging stations

130 additional EV taxis to hit the road by September

This country is using taxis to jump-start its transition to electric vehicles

Despite the hurdles, the visibility of EVs on the road has increased
Prime Minister giving a ride to the Leader of Opposition in his EV
Thank you & Tashi Delek

Pic: Memorial Stupa, Thimphu