

Session 2: «Integrated Approaches of Energy and Transportation Infrastructures for Cities»

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Electrification of urban transport as solution or a challenge for Kazakhstan

Distribution of greenhouse gas emissions by modes of transport in 2013:

- motor transport – 85.1 %;
- pipeline transport – 6.4 %;
- railway transport – 5.1 %;
- civil aviation – 3.1 %;
- waterborne transport – 0.3 %.

Overall, motor vehicles in Almaty burn approximately 772 million liters annually of petroleum and diesel with more than 90% being consumed by private vehicles

CO2 emissions from transport sector(metric tons of CO2) – BAU scenario

2013 - 2 650 000

2023 - 4 990 000

Other pollutants are also expected to grow dramatically. NoX pollutants, which include nitric acid is likely to increase by 60% while carbon monoxide (CO) emissions, which are toxic to humans, are expected to double by 2023.

Sustainable Transport is the system that ensures continuous high mobility and convenience of transport for the whole population in the long term perspective, while providing a positive impact on the environment, as well as social and economic sustainability of the community as a whole.

THE ASI APPROACH TO SUPPORTING SUSTAINABLE, LOW CARBON TRANSPORT



AVOID

MOTORIZED TRIPS

- Motor and fuel taxes
- Road user fees / tolls
- Cordon / congestion pricing
- Car sharing programs
- Transit Oriented Development
- Car free zones
- Commuter trip reduction policies
- Avoid freight empty loads
- Better freight logistics



SHIFT

TO MORE EFFICIENT MODES OF TRANSPORTATION

- Public transport improvements
- Parking management
- Transit Oriented Development
- Improvement in NMT
- Freight rail



IMPROVE

EFFICIENCY OF REMAINING TRAVEL ACTIVITY

- Active traffic management
- Eco-driving
- Fleet maintenance schemes
- Intelligent transportation systems
- Traffic signal synchronization
- Energy efficient vehicles
- Lower carbon fuels
- Aerodynamic vehicle design

Source: ITDP

Electrification of urban transport as solution or a challenge

High Upfront cost

Challenging operation

Procurement & contracts

Interoperability

**Energy sector:
building trust & cooperation**

Electrification of urban transport as solution or a challenge

E-bus = 2 x the price of a conventional bus (battery=45% cost)

Charging infrastructure standardization is key

A chosen technology performs well if put in its “best operational conditions”

Equipment ownership: what happens at the end of a contract?

Urban location of charging
point

- Cabling
- Quality of the electricity
distribution network
- Stability of electricity cost

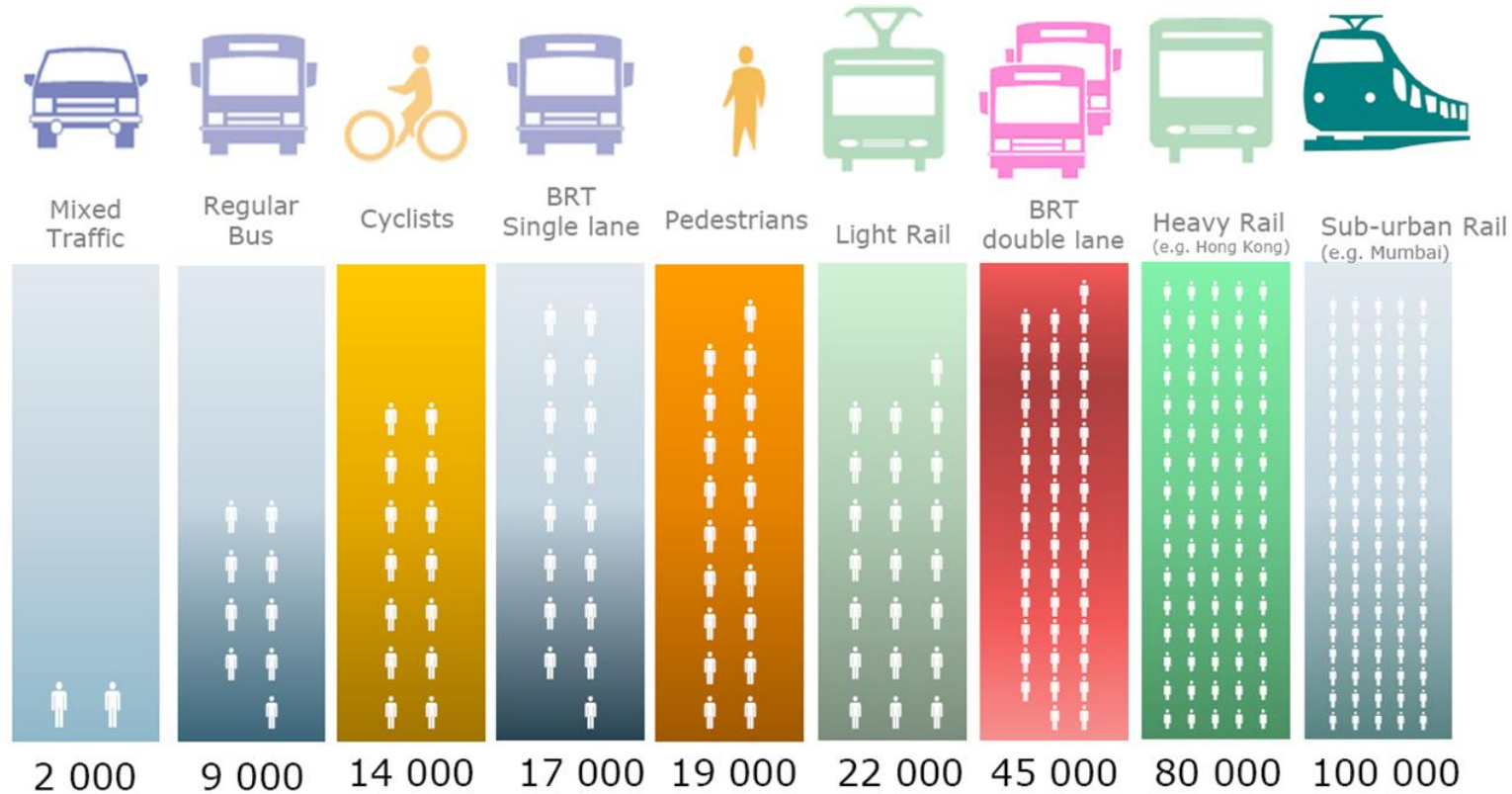
Exploring Opportunities - Use of PT power network (trams, metro)

Different models for different cities

Project governance including **ALL** actors with a clear definition of roles & responsibilities: PTA, PTO, Industry, Grid Owner, Electricity Supplier, etc.
Who pays? At what cost? Who owns rolling stock/infra?



Find Technology for every mode



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