

## Agenda item 4.1 (c) (i)

Paragraph 27 of the annotated agenda

# SSC-NM102: “Ride-sharing services”

**CDM EB 105**

Madrid, Spain, 25 to 28 November 2019



## Background

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- Proponent is “Beijing Didi Infinity Technology and Development Co., Ltd.”
- Proposed methodology includes:
  - **Booking ride-sharing cars** (*sharing ride with another passenger*)
  - **Booking hitch-riding cars** (*sharing ride with the driver*).
- 3<sup>rd</sup> time consideration by the Board.
  - EB 103 requested the MP to further work on the proposal.



## Purpose

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- To present the revised proposal addressing comments from EB103.



## Applicability

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- Introduction of a new ride sharing app (application / platform) for ride sharing services to the project city
  - Ride sharing as a brand new service in an existing app
  - Ride sharing app not previously applied in the city
- Book ride-sharing cars or hitch-riding cars.
- Applicable to **taxis and private passenger cars**
- Only **ride-sharing app** apply for emission reductions.
- Travelling between different cities is not allowed.
- **No presence** of ride-sharing services in project city.



**Measure 1: Booking ride-sharing cars –**

Passengers would take different transportation measures in absence of project activity;

**Measure 2: Booking hitch-riding cars –**

Drivers would travel alone without sharing ride with the passengers, and the passengers would take different transportation measures in the absence of project activity.



In case of trips up to 2.5 km the default baseline scenario will be travelling by one of the non-motorised transport modes, and no emission reductions will be credited for such trips.

## Baseline transport modes

- **Shift from following baseline transport** might generate ERs,
  - a) Buses
  - b) Private passenger cars,
  - c) Taxis (individual rides),
  - d) Private motorcycles,
  - e) Urban rail transit (metro, light rail transit, trams),
  - f) E-biking,
  - g) E-scooters.
  
- **No ERs will be generated** from shift of following baseline modes
  - a) **Non-motorised transport modes**
    - Walking, Bicycling,
    - Passenger tricycle, Cycle rickshaws,
    - Skates, Skateboards,
    - Push scooters, Hand carts,
  - b) **Other vehicle categories such as para-transit,**
  - c) **No traveling,** and
  - d) **Others.**



## Additionality demonstration

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- For investment barrier costs related to
  - **Introduction of the app** to the project city; and
  - **R&D** for app functionality, **server and software cost**,
  - **Human resources, apps localization, purchase of local digital map and daily operation** need to be considered.
- Only **income belonging to local company** should be included.
- Encoding and algorithm development investment **should not** be considered.
- Proponent shall **substantiate the price charged to the user** (including surge or peak pricing) and assumptions **underlying the forecast of the level of the demand**.



## Baseline emissions

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- Baseline emissions of specific car booking model  $i$  ( $BE_{i,y}$ ) is function of baseline passenger-mileage ( $PD_{b,i,y}$ ), share of passengers shifted from baseline vehicle categories ( $SD_{i,j}$ ) and EF of that vehicle category ( $EF_{pkm,j,y}$ )

$$BE_{i,y} = PEF_{b,i,y} \times PD_{b,i,y} \times 10^{-6}$$

$$PEF_{b,i,y} = \sum_j (EF_{pkm,j,y} \times SD_{i,j})$$

- $EF_{pkm,j,y}$  is calculated using approach provided **TOOL18: Baseline emissions for modal shift measures in urban passenger transport.**





**Baseline passenger-mileage** is calculated using;

- a) Baseline travelling mileage of ride-sharing cars and number of passengers under each booking order for **Measure 1**; and
- b) Baseline passenger mileage of hitch-riding cars' drivers under each booking order and baseline travelling mileage of hitch-riding cars and number of passengers under each booking order for **Measure 2**.

- **Measure 1: Booking ride-sharing cars** –calculated as multiplication of total travelling mileage of ride-sharing cars under booking orders ( $D_{o,y}$ ) and EF per kilometre of ride-sharing cars ( $EF_{km,o,y}$ )
- **Measure 2: Booking hitch-riding cars** – calculated as multiplication of total travelling mileage of hitch-riding cars ( $D_{h,y}$ ) and EF per kilometer of hitch-riding cars ( $EF_{km,h,y}$ )

**No leakage is considered.**

## How ERs will be generated

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- Using ride-sharing app to book share rides to **avoid duplicate driving of separate vehicles** with the same or similar route **from passengers** (Measure 1) and **from driver and passenger** (Measure 2).



1. **Extra investments/costs** that will be triggered by application of the methodology;
2. **Establish attributability** of the emission reductions to the project activity measures;
3. **Develop criteria and requirements** for the use of investment analysis for additionality demonstration for measure related to booking taxis;
4. **Include requirements/guidance to ensure the baseline is credible** and remains credible throughout the crediting period.



1. Clarify which concrete investments/costs the application of the methodology will trigger in addition to the existing investments/costs.

Proponent confirms additional cost required for infrastructure set up:

- **R&D investment to develop new tools** to provide efficient service to the commuters;
- **App expansion** to include the service to new cities and performance upgrade;
- **Additional server capacity** that will keep track of enormous data processing capacity and computing power for the operation of the project activity order processing;
- **Cost of software** that is used to compile the data/records accumulated from the trips that are considered for emission reduction calculation.



- Publicly available article on ‘**Cracks in the ride-sharing market-and how to fill them**’, from McKinsey confirms, ride-sharing services entail mainly **high technical needs** due to:
  - a) **Sophisticated algorithm** to match the supply and demand of ride sharing requests;
  - b) **Complicated route planning** as sequences of passenger pick-up needs to be precisely computed.
- A study conducted by MIT on ‘**On-demand high-capacity ride-sharing via dynamic trip-vehicle assignment**’ confirms **ride-sharing app has technical capacity to satisfy these concerns** and can provide a personalized mobility experience and ensure efficiency and sustainability, with additional investment.



2. **Ensure that the methodology establishes the attributability of the emission reductions to the project activity measures (e.g. through surveys, statistical approaches).**
  - Methodology established;
  - a) **Rigorous QA/QC requirements and requirements** on reliable data sources, system test, random sampling and related third-party audits, e.g. it stipulates to use data from project system operator, municipal transit authorities to calculate ‘Number of vkm’, ‘fraction of vehicles using specific fuel type’;
  - b) **Cross-checks to the survey results**, e.g. if respondent mentions that in absence of the project activity she/he would have completed the trip by driving car, then the survey needs to confirm that respondent has valid driving licence;

*continue...*



2. Ensure that the methodology establishes the attributability of the emission reductions to the project activity measures (e.g. through surveys, statistical approaches).
  - Methodology established;
  - c) **Enhanced requirements for conducting surveys** in Appendix 1, e.g. survey needs to be conducted **during an entire week** in each season **avoiding public holidays and extreme weather conditions** to avoid bias and shall be representative for the average demand for transport services in the considered year. Average value of survey result is to be applied for emission reduction calculation.



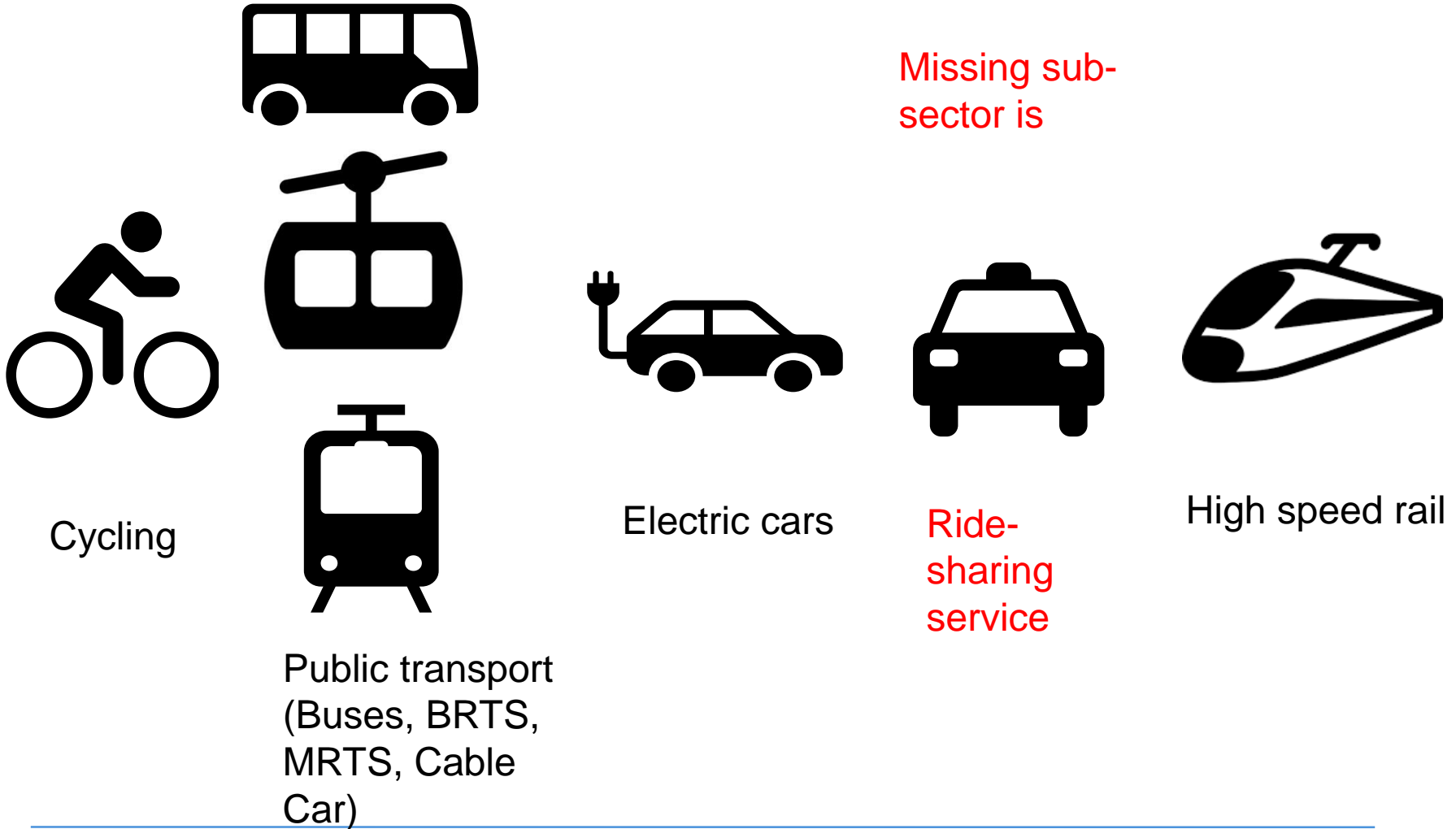
3. **Develop criteria and requirements for the use of investment analysis for additionality demonstration, for example, credible means to verify the projections relating to unloaded ratio of taxis and private passenger cars that result in emission reductions, or identify other means for demonstrating additionality.**
- Stakeholder has **removed measure related to booking taxis** for individual ride using the ride-sharing platform and avoid empty driving of taxis. Therefore, above **issue is no longer relevant.**



4. **Include requirements/guidance to ensure the baseline is credible and remains credible throughout the crediting period, for example, by capturing potential fast-paced changes in the sector in the baseline through dynamic approaches.**
  - Meth includes parameter '***Fraction of comparable cities having in place ride-sharing services ( $F_y$ )***' in baseline emission calculations, to confirm popularity of ride-sharing services within the host country.
  - Baseline emissions will be reduced as **fraction increases**.
  - **Inclusion of such parameter is consistent with practice** as in past similar parameter to confirm market penetration of a technology/measure that is growing at fast-pace was included in the CDM meths.



## Transport sector coverage



- **MP recommends the Board to approve** the proposed new methodology.

