



*This document will explain policies found on ride-hailing electrification from other countries which will be used to identify policy gaps in Indonesia.*

# Road Map and Timetable of Two-Wheeler Electrification in Greater Jakarta

**Report of Ride-Hailing Electrification Policy Gaps in Indonesia**

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## 1. Policies Related to Ride-Hailing Electrification Across the World

This section of the report will explain policies related to ride-hailing electrification in other cities around the world. Countries covered in this report include India, China, Vietnam, Malaysia, the Philippines, the UK, the US, and France. The report will be divided into three sections, which are India, China, and the rest of other countries due to extensive information that were only captured from India and China.

The report will be opened by a brief explanation on the ride-hailing landscape and ride-hailing electrification status of each country, before going deep into policies that might encourage ride-hailing electrification in those countries.

### 1.1. India

#### 1.1.1. Conditions

India is the world's largest two-wheelers (2W) market with 125 million 2W estimated to be plying on Indian roads accounting for more than 70% of the registered vehicles. From enabling last mile connectivity, passenger transport to deliveries of food and packages, the 2W are seen as the carriers of hyperlocal economy. With the transportation sector being the largest carbon-emitting sector in the world, ride-hailing companies have become key contributors in carbon emission through mobility. According to the Union of Concerned Scientists, ride-hailing trips which occur with internal combustion engine (ICE) vehicles contribute 69% increase in average pollution generated by the trips they displace. India has low levels of car ownership with 22 cars per 1000 individuals, among the lowest in the largest economies of the world. With bike taxis evolving to become a preferred choice of transport in cities for short trips (less than 5 km) and first/last mile connectivity, it has the potential to generate more than 2 million livelihood opportunities, along with revenue of USD 4-5 billion (Ola Mobility Institute, 2020).

During 2015-16, there was a sudden growth in the number of start-ups that launched bike-taxi operations in India. In 2017, there were about 40 companies such as Baxi, RideJi, Ola Bike, UberMOTO which started the app-based bike services (Paul, B., 2017). More than 65% of the population of India is below 35 with a high proportion of young professionals living in tier 1 cities. Bike-taxis provide an attractive livelihood to this segment of the population.

According to a bike taxi driver survey by TERI, India, in 2020, 60% of the drivers were between 20-30 years old. Average monthly income of the drivers is around INR 12,000-20,000 with an average daily distance travelled 100-150 km. Average number of trips per day is about 16 with a maximum speed of 50 km/h. Furthermore, 50% of the drivers showed willingness to shift to electric vehicles (TERI, 2020).

The central government has legitimized bike taxi operations through the Taxi Policy Guidelines 2016 by the Ministry of Road Transport & Highways (MoRTH), which recommend that states may

allow 2W taxi permits on the lines similar to those for city taxi for last mile connectivity solution and to allow private bikes to convert to taxis to facilitate utilization of idle assets. However, the onus is on state governments to formulate appropriate policies, as transportation matters are under state governments' jurisdiction. This has led to wide variations in the regulation of bike taxis and their operating conditions across different states.

A total of 14 states have issued notifications allowing the bike taxi services by obtaining contract carriage permits from State and Regional Transport Authorities, upon the receipt of an application and the payment of fees by the operator/aggregator companies as defined. Furthermore, states have imposed different requirements on the operations of bike taxi services, with parameters including vehicle specifications, vehicle markings and driver uniforms, parking requirements, minimum fleet size for operators and fare structure.

Cities are also looking at improving multi modal integration and last mile connectivity by setting up designated parking and pickup/stop points at metro stations

Currently Ride-hailing electrification in India is in its nascent stages of development. Adoption of EVs is happening in two ways, which are:

- New platforms with all electric fleet and captive charging hubs. Examples include Zypp, Blusmart. Companies are also discovering new business models with different ownership models for vehicles and strategic partnership with vehicle and charging infrastructure OEMs.
- Existing ride-hailing companies are migrating to EVs using pilots and business tie-ups in a phased manner to align with market trends and government targets. For example, in 2021, Rapido (one of the 2W ride-hailing companies in India) partnered with Zypp (ride sharing company) to test electric 2W. The pilot was launched in early 2021 in Delhi with Zypp providing 100 electric vehicles with riders and battery swapping support.

Owing to the covid-19 pandemic, the ride-hailing companies have expanded their business to include logistics and hyper local deliveries transitioning from being B2C centric towards the B2B segment. The role of ride-hailing companies in electrification is more diverse than that for conventional ICE vehicles. Here are some of the roles that they currently play:

- They can provide access to various financing options to drivers and accelerate the fleet transition. They can also buy or lease the vehicles and have monthly contracts with drivers.
- They can act as an intermediary between the OEM and the drivers and are able to leverage bulk procurement thus lowering the upfront purchase cost.
- Companies are setting up their own charging hubs in partnership with charging infrastructure providers. These charging hubs can be opened for public use there by



expanding the charging network. The electric 2W on these platforms can also use the existing charging and thus improve the viability of the existing charging network.

- Piloting models for transitioning to electric vehicles (EV) and act as test beds in discovering business models that are viable. For ex. companies are offering rental programs to individuals who cannot buy an EV. One such startup company 'Zypp' also offers individuals who own electric 2W to lease their vehicles to the company and earn monthly returns. Zypp deploys these vehicles for their driver partners.
- Providing inputs to the governments in shaping electric bike taxi policies.
- They are the first point of touch for shared and electric mobility helping in multi modal integration and last mile connectivity.

The Government also plays an important role on electrification of ride-hailing fleets. The first role they play is to frame policies that fit in the overall cities vision for mobility which includes a decarbonisation plan, improving access and mobility for all users. In addition to improving transportation flexibility and resiliency for the general public, the electric bike taxi mobility demonstrations also help to test whether reliable access to transit and a range of shared electric mobility options improves employment and health outcomes for low-income workers and their households.

Additionally, the Department of Heavy Industries (DHI) has revised FAME II by increasing the purchase incentive on electric 2W from INR 10,000/kWh to INR 15,000/kWh and increased the limit of this incentive to 40% of the ex-showroom price. Although not specifically meant for ride-hailing fleets, this in turn will help in boosting the sales of electric 2W for ride-hailing usage.

Their other roles on encouraging EV usage for general public include supporting the installation of shared charging infrastructure, be it at public spaces and workplaces, to ensure access for drivers without dedicated parking at home to access chargers, supporting manufacturing policies to scale electric bike manufacturing and drive down unit costs, and unlocking public funding and policy support.

### **1.1.2. Policy**

There are four policy aspects that would be elaborated in this report. Those are policies related to incentives, ride-hailing permit availability, required vehicle specifications, and operational patterns.

#### **1.1.2.1 Incentives**

Fiscal incentives are currently given to electric vehicle owners, not specifically towards ride-hailing drivers. Many states have fiscal and non-fiscal incentives for electric 2Ws such as purchase subsidies, scrapping incentives, free parking permits and incentives for charging infrastructure.

These are also applicable for the ride-hailing electric 2Ws. Karnataka is the first state to introduce the electric bike taxi policy in July 2021 which mandates the use of electric bikes for ride-hailing. The policy allows individuals with electric bikes to register and operate independently in addition to registering with a ride-hailing company. Some of the features of the policy are discussed in the later sections. This scheme will give opportunities for individuals, partnership firms and companies to participate. The vehicles registered under this scheme will be in the transport category for which the government has given several exemptions like permit, tax and in addition financial benefits for the electric vehicles manufacturers.

Ride-hailing companies are also offering innovative schemes and incentives for drivers to attract more driver partners onto their platforms. For example, Rapido provides electric 2W bikes on rental to those who do not have vehicles of their own. It has partnered with a 2W servicing provider to provide door-to-door servicing and repair options for its driver partners. They are also providing insurance coverage for the driver partners and their dependents.

#### 1.1.2.2 Ride-hailing permit availability

##### **National policies**

As per a central notification, bike taxis may ply as ‘contract carriage’ as defined in Motor Vehicle Act, 1988. From 2004 onwards, Government of India allowed motorcycles to be used as transport vehicles and allowed the registration of motorcycles as ‘transport vehicles’, where they can be used on hire to carry one passenger on pillion (MoRTH, 2004). A ‘transport vehicle’, as defined under Section 2(47) of the Motor Vehicle Act, means and includes ‘public service vehicles’ among other types of vehicles and a ‘public service vehicle’ is further defined under Section 2 (35) of the Motor Vehicle Act as ‘any motor vehicle used or adapted to be used for the carriage of passengers for hire or reward, and includes a maxi-cab, a motor-cab, contract carriage’.

In December 2016, a report by the MoRTH constituted a committee to review the issues related to taxis, recommending the State Transport Department to allow 2W taxi permits on the lines similar to those for city taxis. This was recommended to achieve an economical and a convenient last mile connectivity solution for the citizens. Further, the bike taxis will allow existing private bikes to facilitate utilization of idle assets (MoRTH, 2016). Later in 2018, NITI Aayog’s report on shared mobility also stated the importance of bike sharing for last mile connectivity and as an affordable transit mode (NITI Aayog, Rocky Mountain Institute, and Observer Research Foundation, 2018).

##### **Local / State policies**

The states of Haryana, Mizoram, West Bengal, Uttar Pradesh, Rajasthan and Punjab have issued notifications allowing the bike taxi services by obtaining contract carriage permits from State and Regional Transport Authorities, upon the receipt of an application and the payment of fees as defined.

Motorcycles plying as bike taxis in these states must be registered as transport vehicles, equipped with a yellow number plate with black alphanumeric lettering. This is distinct from the contract carriage permit that allows the use of motorcycles for rental purposes, which are equipped with a black number plate with yellow alphanumeric lettering. Further, states have imposed different requirements on the operations of bike taxi services, with parameters including vehicle specifications, vehicle markings and driver uniforms, parking requirements, minimum fleet size for operators and fare structure. Regulation of bike taxi services across states is currently uneven, characterized by an absence of standards and wide variations in the conditions of operation as detailed in [Table 1](#).

Table 1 Regulation of Bike Taxi Services in India

States	Parking Specs	Safety Specs	Vehicle Specs	Fare Structure	Data Sharing	Area of Operation
Haryana	✓	✓	✓			
Punjab	✓	✓	✓			
Rajasthan						
West Bengal	✓	✓		✓	✓	✓
Mizoram		✓	✓	✓		✓
Uttar Pradesh	✓	✓	✓			

Ride-hailing companies require drivers to submit their driver's license, vehicle registration and insurance policy, PAN card and bank details to register as drivers on the platform. The companies also perform verification of these details and inspection of the bike.

#### 1.1.2.3 Vehicle specifications

While the central government paved the way for the legalization of the bike taxis, states have framed their own policies leading to wide variations in their rules and regulations. [Table 1](#) shows the various types of regulations in some states. The requirements include parameters such as vehicle specifications, vehicle markings and driver uniforms, parking requirements, minimum fleet size for operators and fare structure. Some of the common specifications are:

1. Valid fitness certificate of the vehicle,
2. GPS based tracking system to ensure safety and security of the passenger,
3. Meet emission standards of BS VI set forth by the MoRTH from time to time,
4. Police verification and availability of a first aid box,



5. Carriage of minors as passengers and more than one pillion rider is not allowed,
6. Provide evidence of regular maintenance practices.

In West Bengal, the service provider must own a minimum of 15 motorcycles to operate bike taxis, must have parking facility, and also operate in a limited area/zone and limited timings (e.g. 8 am to 8 pm)

In Mizoram, any scooter or motorcycle, not older than two years can be used as a taxi after being issued a permit. The 2W must be 125 cc or above and the driver should wear a yellow helmet (headgear) with 'Taxi' clearly written in red colour on the front side while the registration plate should also be of yellow colour. Bike taxis charge passengers INR 10 for the first kilometre and INR 5 for every subsequent kilometre, as per the government fare structure.

In Punjab, the bike taxi permit is issued only to a new vehicle or a vehicle which is not more than five years old from the date of registration.

Karnataka's electric bike taxi policy mandates the use of electric vehicles only for ride-hailing. Some salient features of the policy are:

1. Individuals can register their e-bike as a taxi,
2. Individuals are also allowed to attach their vehicle with a ride-hailing company or operate independently,
3. Customers can book electric bike taxi to travel a maximum distance of only 10 km,
4. The main aim for electric bike taxis has been envisioned to serve as feeder services for Metro and buses in the city,
5. Fare structure will be likely in two stages, which are 5 km and 10 km,
6. It is also mandated for electric bike taxis to have GPS, clearly identifiable as a bike taxi (written on the vehicle) and to have a valid insurance policy.

However, the existing policies do not cover requirements related to batteries and safety norms for electric vehicles. Currently most of the battery packs for electric 2W do not have BMS (Battery management software). This can pose fire and safety hazards due to overheating of the batteries and thermal runaway that can happen during high power charging. The BMS controls the charging power and current running into the battery thereby preventing overheating and other problems. To mitigate this risk, electric 2Ws batteries should also be equipped with BMS.

E2Ws should also be purchased from authorized dealers and the vehicles should meet the testing and safety standards as per the specifications set by Automotive Research Association of India (ARAI) and type approval. Lastly, entry level barriers for drivers in terms of cost for registration and change of license plates for bike taxis can also be eased to promote easier adoption of bike taxis and electric bike taxis.

From ride-hailing operator views, in general there are no policies with respect to vehicle specifications stipulated by the operator/ride-hailing company. However, ride-hailing companies

are employing various security and safety measures to ensure the safety of passengers and enhance customer satisfaction. These include and are not limited to:

- Ride-hailing companies put a lot of emphasis on driver training. The training usually involves educating drivers about the rules and regulations of road safety, customer interaction, and other behavioural aspects.
- They perform background verification checks to ensure the drivers do not have any criminal record.
- Platforms mandate the use of helmets for both the driver and pillion rider without which the user has the right to cancel the ride.
- Ride-hailing platforms also enable emergency response to passenger in the form of SOS button which can be alerted to friends and family and nearby police control room for immediate response.

#### 1.1.2.4 Operational patterns

Some of the state level policies stipulate the maximum kilometres per trip. For example, as mentioned above, the Karnataka electric bike taxi policy states a distance between origin and destination per trip to be not more than 10 km.

Although ride-hailing operators will comply with regulations set by the government based on their operational area, ride-hailing companies in general do not impose any restrictions on maximum trip distance.

## 1.2. China

### 1.2.1. Conditions

Ride-hailing service is a huge thing in China, reaching a market size of USD 879.8 billion in 2020, which accounted for 13.1% of worldwide ride-hailing market (Global Times, 2021a). However, their ride-hailing fleets only consist of 4W and none of them are motorcycles. This was due to the fact that 2W, particularly mopeds, are being banned to carry additional passengers (beside the driver) in most parts of the country (NPC Standing Committee, 2005).

In China, the government plays a big part in their ride-hailing landscape. Starting from 2015, the national government through the Ministry of Transportation have introduced ride-hailing licences for both the drivers and their vehicles (Lian and Takada, 2015). Local governments also play a role in China's ride-hailing governance, mainly on the supervision side, to ensure that every operating ride-hailing driver and vehicle have their respective licence in place (Global Times, 2021b). Another government's agency that plays a role in China's ride-hailing landscape is Cyberspace Administration of China (CAC), which regulates online ride-hailing markets, including monitoring any breach on ride-hailing users' privacy (Global Times, 2021b; Horwitz, 2021).

Currently Chinese ride-hailing operators already use a sizable number of electric vehicles. Didi, the biggest ride-hailing operator in China, have used 969,000 EVs on their fleet since the end of 2019 (Bloomberg, 2020). Although the number is far below the total of 13 million vehicles registered on Didi's platform (Cheng, 2021), it constitutes around 30% of EVs in China (Bloomberg, 2020). The growth of EV usage on ride-hailing operators was due to the fact that some cities in China, such as Shenzhen, have required all ride-hailing vehicles to be electric starting from the end of 2020 (Hall et al., 2020).

### **1.2.2. Policy**

#### **1.2.2.1 Incentives**

Recently, the Chinese government provided a subsidy for the general public that reduced up to 30% of electric vehicle price through the New Energy Vehicle initiatives (ITDP-China, 2017). Although ride-hailing operators and drivers also received the same incentives as the general public to acquire EV through the New Energy Vehicles initiatives, there is currently no specific incentive being given by the governments towards ride-hailing operators or drivers to accelerate EV usage on ride-hailing fleets.

However, there is some sort of incentive given by the operator towards ride-hailing drivers. In recent years, Didi have worked together with BYD, one of the major EV manufacturers in China, to develop an EV model specifically built for ride-hailing purposes, called BYD D1 (Didi Global, 2020). Not only its specifications would be suited for Didi's drivers to perform their daily duties, some reports suggest that Didi's drivers could enjoy special prices as these vehicles are also being sold to the general public as well (Kane, 2021). Moreover, Didi and BYD have also set up an affordable rental scheme for BYD D1 specifically for Didi's drivers that opt to not own the vehicle (Kane, 2021).

#### **1.2.2.2 Ride-hailing permit availability**

As mentioned briefly above, the implementation of licences for ride-hailing drivers and vehicles have been started since 2015. Things that need to be assessed to get those licences include the minimum amount of driving experience for ride-hailing drivers and the maximum number of seats on each ride-hailing car, among other things (Lian and Takada, 2015). It came into effect on January 2019 where ride-hailing operators started to ban drivers and/or vehicles without the required licences (Liao, 2019).

#### **1.2.2.3 Vehicle specifications**

To be able to obtain a licence for ride-hailing vehicles as stated above, the vehicle should comply with the required specifications. Although the requirement slightly differs between cities, they are mainly meant to ensure safety and emission levels of ride-hailing vehicles.

To ensure safety level, the city government of Xiamen is currently proposing ride-hailing vehicles to be equipped with satellite positioning devices with travel record and emergency alarm function. Another safety related requirement for ride-hailing vehicles is minimum range, in particular for Battery Electric Vehicle (BEV). This was meant to ensure ride-hailing passengers would safely arrive at their destination without running out of battery. In Nanchang, the minimum range of single charging for BEV is 300 km (Nanchang City Transportation Bureau, 2020).

To ensure an acceptable emission level, some cities in China have required newly registered vehicles to be electric. Those cities are Shenzhen, Guangzhou, Zhengzhou, Wuhan, and Xi'an (Hall, et al., 2020; Hall et al., 2021). This will allow full electrification on ride-hailing fleets by 2028 as ride-hailing vehicles in those cities are not allowed to be more than 8 years old (Hall et al., 2021).

Ride-hailing operators will also ensure that every ride-hailing vehicle registered on their platform comply with government regulation. To enable this, Didi made their own vehicle database, which is being updated continuously based on the requirement from both national and local governments of each Didi's operational area (Didi, 2021). However, ride-hailing operators in China seem to not have policies that require drivers to use electric vehicles because even though there are many national policies on encouraging ride-hailing vehicles to use new energy vehicles, these national-level policies did not set mandatory requirements of how many ride-hailing vehicles must be electric. Such policies include the Green Mobility Action Plan by the Ministry of Transport (MoT, 2019a) and Action Plan to Promote the Electrification of Public Sector Vehicles by the Ministry of Industry and Information Technology (MIIT, 2020).

#### 1.2.2.4 Operational patterns

Regarding operational patterns, currently there is no information that could be captured from the ride-hailing fleets landscape in China.

### 1.3. Other Countries

As there is only limited information regarding ride-hailing electrification from other countries outside India and China, a compilation of information from few countries would be made instead. Those countries include Vietnam, Malaysia, and the Philippines who have a sizable number of 2W ride-hailing fleets in their countries. This report would also elaborate some information captured from the UK, the US, and France on their effort to electrify their ride-hailing fleets, even though they only have 4W ride-hailing fleets in their countries.

#### 1.3.1. Conditions

Although ride-hailing services are currently being regulated differently between each country, they have things in common. Usually, the responsibility of ride-hailing governance in a country lies under the Ministry of Transportation. However, different countries have reacted differently towards ride-hailing service development in each of their countries.

In Vietnam, Ride-hailing companies like Grab and Uber entered the market in 2014 and 2015, providing taxi services by car and motorbike. Given the new nature of app-based services, the Ministry of Transport created a temporary pilot programme for these services in a limited number of large cities to weigh the impact of long-term legalization. As these app-based ride-hail services grew in the ensuing years, they put significant economic pressure on the incumbent taxi industry, eventually prompting the Ministry of Transportation to draft and adopt new regulations that put them on a more level playing field related to taxes and business classification.

In Malaysia, app-based two-wheeled ride-hailing services launched briefly in 2016, but were quickly banned due to concerns over road safety as well as cultural sensitivities about drivers and passengers of different genders sharing a vehicle. After years of debate, late in 2019 the Ministry of Transport announced a six-month 'bike-hailing' pilot program to re-introduce services like Grab, Go-Jek and Malaysia-native Dego Ride. Structured as a proof-of-concept (POC), the pilot was created to gather data while the government drafted more long-term legislation to govern two-wheeled ride-hailing.

In the Philippines, the company Angkas pioneered the two-wheeled ride-hailing industry. After launching in 2016, the company was suspended due to safety concerns and the lack of a business license. Angkas clashed repeatedly with public authorities in the subsequent years, with drivers often arrested and several pauses and restarts to the consumer service. As app-based services became more entrenched in the region, public authorities eventually moved to bring the sector into clearer legal territory. In 2019, two-wheeled ride-hailing services were granted pilot approval by the Department of Transportation and the Land Transportation Franchising and Regulatory Board.

On the electrification effort of ride-hailing fleets, data are hard to come by, in particular on those mentioned countries. However, some reports suggest that ride-hailing companies are currently preparing the transition into EV in the Southeast Asia region by conducting pilot projects, partnering with some vehicle manufacturers (Pillai, 2021). In North America and Europe, other ride-hailing companies such as Uber and Lyft also have their own electrification target. They have committed to have 100% electric fleets by 2030 (Khurana, 2021). Latest figures suggest that 10% of Uber fleet in Oregon, US, have been electrified by the year of 2019, while 50% of the fleets in London, UK, are expected to be electrified by the end of 2021 (Slowik et al., 2019).

### **1.3.2. Policy**

#### **1.3.2.1 Incentives**

To allow for more electric vehicles being used as ride-hailing vehicles, other countries have also implemented fiscal and non-fiscal incentives towards electric vehicle usage on ride-hailing vehicles. In the US, San Francisco implemented a discounted ride-hailing tax by up to 54% for those who use electric vehicles (Hall et al., 2021). Whereas in the UK, although there are currently no fiscal incentives given specifically to ride-hailing drivers, a purchase subsidy of up to GBP 7,500

is given towards taxi drivers to buy a new electric vehicle (Hall et al., 2021). Considering electric vehicles price in the UK, this subsidy cuts new electric vehicles' price type by up to 28% (Nissan, 2021).

In other Southeast Asian countries, there is currently no strong fiscal incentives given towards ride-hailing drivers to encourage electric vehicle adoption. In Malaysia, officials are said to be finalizing an electric vehicle strategy, which is expected to include a range of interventions. These interventions would include vehicle cost and tax treatment, road usage fees and tolls, parking policy, and public charging infrastructure (Lim, 2021). However, it is not known what policies, if any, will be directed toward electrifying 2W as the policy package has not been implemented yet.

On the other hand, Vietnam does not have supportive policies in place for broader vehicle electrification, including no tax incentives or price subsidies for electric vehicles, nor any initiatives to support the creation of a widespread public charging network. However, they are quite ambitious on the non-fiscal incentives as they are planning to end licensing of new motorbikes by 2030 (Hai, 2019), which could create a major incentive towards electric 2W usage as proved to be powerful in China during early 2000s. Other non-fiscal incentives from other countries include Low-Emission Zones (LEZ) and Zero-Emission Zones (ZEZ) implementation on various cities in Europe that allows EV to pass through, and congestion charging exemption for EV found in London, UK (Hall et al., 2021).

Apart from incentives given from the government, ride-hailing drivers in some countries also receive some incentives from their respective companies. Uber in London, UK, and France raise ride-hailing fare by a small amount, GBP 0.15 per mile in London and EUR 0.03 per km in France (Hall et al., 2021). The collected money would then be used to help Uber drivers who want to shift into EV. Moreover, in France, the previously mentioned fare increase only applies to conventional ride-hailing fleets, thus further encouraging drivers to shift into electric vehicles due to the possibility of higher demand (Hall et al., 2021).

To further ease drivers' transition towards EV, Uber in the US and Europe has also established partnerships with charging infrastructure providers. In the US, Uber created a partnership with EVgo and offered an up to 25% discounted rate for Uber drivers to charge at their facilities (Hall et al., 2021). Whereas in the UK and France, Uber partnered with Power Dot, EDF, and BP to provide exclusive access for their drivers in utilizing the charging infrastructures (Hall et al., 2021).

#### 1.3.2.2 Ride-hailing permit availability

Many countries have actually required ride-hailing operators, or ride-hailing drivers, to own a permit so that they could offer ride-hailing services. In Vietnam, upon the introduction of regulations that put ride-hailing vehicles on a more level playing field with the incumbent taxi industry, app-based businesses like Grab must fulfil national requirements related to labour, vehicle types, data, and more as governed by the Ministry of Transport, as well as all relevant local-level regulations (Jacob, 2020). In the Philippines, ride-hailing drivers are also subject to



permits. This allows the government to calculate the number of operating ride-hailing drivers, as they currently are limiting the number of riders that could be operated in the city of Manila and Cebu (Tantuco, 2019).

Ride-hailing permits seem to also be in place in developed countries such as the US and the UK. In New York city, ride-hailing vehicles need to get a For-Hire Vehicle License before they can operate in the city (City of New York, 2021). Whereas in London, the permit is called Private Hire Vehicle License where drivers need to work for a licensed private hire operator (Transport for London, 2021a).

#### 1.3.2.3 Vehicle specifications

Vehicles to be used as ride-hailing vehicles should comply with the requirement set by the governments. This requirement usually is meant to ensure safety, comfortability, and emission level of vehicles used as ride-hailing fleet. In Vietnam, 4W that are used as ride-hailing vehicles are required to have cameras to record the driver and the car doors and vehicle tracking system to ensure safety level of ride-hailing passengers. They also require the vehicle to be below a certain age, however no requirement on emission or fuel economy standards (Nhat and Vu, 2020).

Requirements on emission for ride-hailing vehicles are more commonly found in developed countries. Since 2020, London has required vehicles to be registered on private hire license to be zero emission capable, which means they need to have a minimum 10 miles of electric range, emit less than 75 g CO<sub>2</sub>/km, and comply with the Euro 6 emission standard (Transport for London, 2021b). In France, 10% of taxis and ride-hailing vehicles need to emit less than 60 g CO<sub>2</sub>/km by 2020, whereas in the city of New York, only electric vehicles are allowed to get a license for ride-hailing vehicles after July 2019 (Hall et al., 2021).

Furthermore, ride-hailing operators in some countries have some additional requirements for the vehicles to be used by their drivers. Uber, for example, would not allow any additional diesel vehicles inside their platform starting from 2022 to achieve their target of 100% electrification by 2030 in France (Hall et al., 2021). In Portugal, they have also been accepting electric vehicles only since July 2020 (Hall et al., 2021).

#### 1.3.2.4 Operational patterns

As it turned out, not many cities have actually restricted ride-hailing vehicles' operational area. However, a good example of ride-hailing operational area restriction could be found in Malaysia. 2W ride-hailing services in Malaysia are meant to enhance the first and last mile connectivity, thus their operational area would need to be limited, estimated to be between 3 to 5 km (Izham, 2019). However, as they are currently still in the pilot phase of ride-hailing service, no decisions have been made on how far should they be able to operate.

## 2. Gaps in Indonesia

This section will summarise Indonesia's current conditions and policies in terms of incentives, ride-hailing permit availability, vehicle specifications, operational patterns, and other related policies. Gaps would then be identified and analysis would be made by comparing Greater Jakarta and other global cities that have successfully electrified their motorcycles or committed into electrifying their ride-hailing fleets as well.

### 2.1. Conditions

#### 2.1.1. Ride-Hailing Landscape

Although 2W ride-hailing service has been long established in Indonesia, primarily for local trips only, it was not until 2015 when their growth increased rapidly through the introduction of online ride-hailing apps which connect riders and prospective customers more easily. Not only providing passenger transportation services, both of those companies are also offering food delivery and instant goods delivery services. These two apps allow more people to find a living by becoming a ride-hailing driver. Even though no exact figure was found, it was estimated that the number of ride-hailing drivers in Indonesia reached 2.5 million people (Azka, 2019), which brings more than IDR 132 trillion a year to the Indonesian economy (Walandouw et al., 2018; CSIS and Tenggara Strategics, 2020).

On a national level, the Ministry of Transportation (MoT), is responsible for the governance and regulation of transportation in Indonesia, including ride-hailing services. With a significant number of ride-hailing drivers and users, the government took the role to regulate, monitor and evaluate ride-hailing services, since it is strongly related to public safety and security. After more than four years of operation in Indonesia, in 2019 Indonesian Government finally released a legal protection for online 2W ride-hailing services through the Ministry of Transportation (MoT) Regulation No. 12 of 2019 with safety, security, convenience, accessibility and regularity as the primary concerns. This regulation mainly regulates the operation of 2W ride-hailing, ranging from service level agreement, rider's partnership, to fare calculation that further being regulated in MoT Decree No. 348 of 2019.

Through ministerial regulation, the Indonesian Government not only regulates ride-hailing operators, but also regulates ride-hailing drivers directly, mainly related to the service level agreement. However, motorcycles are still not considered yet as a legal mode for public transportation as the larger regulation of Indonesian Law No. 22 of 2009 do not consider motorcycles to be used as public transportation (Hikam, 2020). Moreover, this ministerial regulation does not include the penalty for disobeying the rules, for both the ride-hailing drivers or operators. It has been said that both the Law No. 22 of 2009 and MoT Regulation No. 12 of 2019 would be revised to accommodate those gaps. However, by the time this report was made, it was still unclear.

The relations between ride-hailing operators and drivers are partners, as regulated on the MoT Regulation No. 12 of 2019. As the frontrunner of ride-hailing services, drivers should be expected to represent the operator's company values. Hence, beside the applied laws nationally or locally (including the traffic laws), ride-hailing drivers are obligated to follow the ride-hailing operator's company policies, mainly related to operational issues such as service level agreement. Popular penalties include account suspension, and even partnership termination from the ride-hailing operators (MoT, 2019b).

Although ride-hailing service regulation is mainly issued by the national government, in local cases, local government (usually provincial level), would also regulate the ride-hailing service. For instance, the Provincial Government Jakarta through the transport agency released a decree to require ride-hailing drivers in Greater Jakarta area to have a worker registration certificate (STRP) during the emergency public activities restriction (PPKM). Else, during the early period of COVID-19 outbreak, ride-hailing service in Jakarta is allowed to deliver food and goods, but not passengers (Sari, 2020).

Apart from MoT, another ministry that regulates online ride-hailing services is Ministry of Communications and Informatics (MoCI) since online ride-hailing services use online applications. MoCI has established the MoCI Regulation No. 5 of 2020, concerning the requirements for Private Electronic System Operators registration, that requires ride-hailing operators for instance, to be registered to be able to operate and develop their online application. Not just an online application permit, this regulation also regulates the operation of online applications including the protection of users' personal data.

### **2.1.2. Ride-Hailing Electrification**

With far less emissions resulted, electric vehicles are on the front runner to replace gasoline vehicles, including for ride-hailing usage. The Indonesian Government has released the Presidential Regulation No. 55 of 2019 to accelerate vehicle electrification in August 2019. Furthermore, in December 2019, the Coordination Ministry for Maritime and Investment Affairs had collaborated with Grab and established an Electric Vehicle Ecosystem Roadmap until 2027 (Semiono, 2019). Grab involvement in the roadmap development might show the significance of ride-hailing in vehicle electrification efforts.

Prior to the roadmap launching, the Ministry of Industry and New Energy and Industrial Technology Development Organization (NENDO) conducted an electric vehicle study to accelerate vehicle electrification in Indonesia. A pilot project which is held from July to August 2019, is included in the study, involving Grab and Gojek as the user. The study includes technical performance, customer acceptance, and industrial and social impact (Pratomo, 2019).

Following the Electric Vehicle Ecosystem Roadmap, Grab initiated a pilot project for electric vehicles. In the same month as the roadmap launching, Grab planned to deploy 20 electric cars, 10 electric Honda PCX and 10 Gesits electric motorcycles. In August 2020, Grab had also deployed 50

Viar Q1 electric motorcycles (Raspatidana, 2020) to be operated in DKI Jakarta, for food and goods delivery services. Grab also collaborated with Kymco and PLN to establish a battery swapping station at Cikokol, Tangerang, and deployed 20 Kymco (KabarOto, 2020) electric motorcycles to be operated in Tangerang. In November 2020, Grab had agreed an MoU with OEMs and PLN for electric vehicle development as well as did another pilot project in Bali with 30 electric motorcycles fleet and 7 battery swapping stations throughout Bali.

Up to April 2021, Grab had deployed 6,000 electric vehicles, including electric cars, electric motorcycles, electric bikes, and electric scooters. By the end of 2021, Grab has planned to add another 1,500 electric vehicles to their current electric line-up (Nanda, 2021). Gojek, on the other hand, already set a target for their vehicle to be fully electrified by 2030. Gojek has already had an electric vehicle pilot project in collaboration with PLN and Pertamina, as well as partnering with OEMs such as Gesits, Viar, NIU Technologies, Honda Motor Co, Toyota Motor Corporation, and Mitsubishi Motors Corporation (Dananjaya, 2021).

Indonesian Government, not only involved in the physical development of electric vehicle, but also through policies that could increase the use of electric vehicle for ride-hailing service that would be explained below.

## **2.2. Policy**

### **2.2.1. Incentives**

To accelerate the adoption of electric vehicles, the national government and some local governments have already given incentives for electric vehicles, both fiscal and non-fiscal incentives. Not only for the users, the incentives given are also for electric vehicle producers, which would not be discussed in this section unless it is related to the ride-hailing operator. However, there is no direct incentive for ride-hailing operators yet for using electric vehicles. Therefore, the incentives discussed below would be for electric vehicle in general, which would be divided into fiscal and non-fiscal incentives.

#### **2.2.1.1 Fiscal Incentives:**

Currently, Indonesia provides some fiscal incentives for electric vehicles, mainly related to the tax or financing scheme of electric vehicle purchase. Through the Government Regulation No. 74 of 2021, the national government imposed 0% luxury tax (PPnBM) for electric vehicles, although motorcycles in general would not be subjected to luxury tax. National government also reduced road tax (PKB) and purchase tax (BBN-KB) as stated in Ministry of Home Affairs Regulation No. 1 of 2021 (updates of MoHA Regulation No. 8 of 2020), even though it varied between regions. DKI Jakarta, for instance, imposed 0% on BBN-KB for electric vehicle instead of up to 12.5% for conventional vehicle while West Java reduce BBN-KB from 12.5% (conventional car) to 10% for electric car and from 12.5% (conventional < 250cc motorcycle) to 2.5% for electric motorcycle.

Not only taxes, the national government also provides another fiscal incentive. The Central Bank of Indonesia has regulated vehicle down payment to be 0% (previously only for electric vehicles in 2020). State utility company (PLN) also gives fiscal incentives for, currently, electric cars only. PLN provides a discount on electrical power installation and or increase for electrical home charging. Last but not least, PLN also gives a 30% discount on electric rate (Sunardi, 2021) for electric car home charging during 10 PM to 5 AM.

Ride-hailing operators also give incentives for drivers who use electric vehicles. Currently, Grab and Gojek cover the charging and maintenance cost for their electric 2W drivers. Gojek partners with Astra to provide Honda electric motorcycle free maintenance at the selected AHASS workshop (Pebriyanto, 2019). Grab, similar to Gojek, provides free maintenance and battery charging or swapping at their shelters. Not only that, Grab also provides electric 2W rental for drivers who do not or opted not to own a 2W.

Other countries such as China, India, and the UK also provide fiscal incentives for electric vehicles. However, they tend to provide direct subsidies, reducing the price of electric vehicles directly. For instance, China subsidise 30% of the vehicle price through the New Energy Vehicle Initiatives (ITDP-China, 2017) while the UK Office for Zero Emission Vehicles (OZEV) and Transport for London (TfL) gives taxi drivers up to GBP 7,500 (up to 28%) for the purchase of a new electric vehicle (ICCT, 2021). Also, Chinese ride-hailing operator, Didi partners with electric vehicle manufacturer, BYD to develop specific model for ride-hailing service and give special price for ride-hailing drivers.

**Identified Policy Gaps:** Even though the government has already given such incentives in the form of tax reduction or exemption and financing schemes, a more direct subsidy such as purchase subsidy could actually increase electric vehicle adoption. Looking at countries like China and the UK, purchase subsidies of up to 30% is more significant in amount compared to the paid-up front tax such as PPnBM and BBN-KB (only up to 12.5%) or even annual tax such as PKB. Moreover, for 2W ride-hailing, electric motorcycle doesn't benefit from the PPnBM exemption since motorcycle (except larger than 250 cc) is not subjected to the tax.

#### 2.2.1.2 Non-Fiscal Incentives

Not only fiscal incentives, government, mainly local government also gives non-fiscal incentives for electric vehicles. For example, The Provincial Government of Jakarta has exempted electric vehicles as well as ride-hailing vehicles (Yati, 2021) from odd-even policy, even though the odd-even policy is currently only applied to four-wheeler vehicles. As the successor of the odd-even policy, Jakarta has actually planned Electronic Road Pricing (congestion charging) but has not been implemented yet. In early 2021, Jakarta has also introduced the implementation of Low Emission Zone currently at the Old Town Area and would be expanded in the future. This policy prohibits conventional motorized vehicles, but public transportation and electric vehicles including the 2W.

Operational patterns set by the operator might also be considered as non-fiscal incentives, depending on each driver. Based on the previous driver interview survey, current ride-hailing

drivers in Greater Jakarta who used electric 2W mostly get food delivery orders and ride shorter distances and felt to be more prioritized compared to the conventional ones. This would encourage those who prefer to take food delivery service and travel a shorter distance to use electric vehicles. Such indirect incentives could also encourage drivers to shift to electric vehicles.

London has already implemented a congestion charge since 2003 and, like Jakarta in odd-even policy, waives the fee for vehicles emitting less than 75 gCO<sub>2</sub>/km, which include all electric vehicles and almost all hybrid electric vehicles. Not only that, London has also introduced Zero Emission Zone in two small areas since the beginning of 2020 and has planned to create a central ZEZ in 2025.

Another form of transport demand management would include road pricing or vehicle or ride-hailing tax similar to those in San Francisco and London. San Francisco implemented a ride-hailing tax but applied a discount for zero-emission vehicles (ICCT, 2021) whereas France also put an additional charge for trips using Uber, but Uber Green and used the fee to assist drivers' transition to electric vehicles. A bit different, London also charge customer clean air fee paid for every trip with Uber and use it to help Uber drivers upgrade to electric vehicle.

**Identified Policy Gaps:** Although Indonesia, mainly Jakarta, has already given non-fiscal incentives for electric vehicles and electric ride-hailing, more advanced policies could be applied. For example, instead of an odd-even policy, Indonesia (or Jakarta) immediately apply electronic road pricing like in London. With better enforcement, electronic road pricing could more effectively reduce congestion and emission by discouraging conventional private vehicles. ZEZ also should be implemented in Jakarta thoroughly, not only LEZ in small areas in Jakarta to lift the adoption of electric vehicles. Last, such vehicle tax or ride-hailing tax also could be implemented for conventional ride-hailing fleets to discourage the usage of conventional ride-hailing fleets while encouraging the usage of electric vehicles and the fee collected could help the adoption of electric vehicles.

### 2.2.2. Ride-Hailing Permit Availability

As a legal protection, MoT Regulation No. 12 of 2019 does not require 2W ride-hailing drivers to have a special permit. Contrarily, MoT Regulation No. 118 of 2018 on Operations of Special Rental Transportation, requires car-based ride-hailing drivers to have Service Standard Electronic Card (KESP) as a permit for vehicles operational as ride-hailing. The electronic card only applies for one vehicle and should be renewed once a year. This difference might be due to the fact that motorcycles are not yet considered as legal public transportations even though it is legal to use motorcycles for public purposes.

Special permit for electric vehicles is currently not needed yet except electric vehicles using a slightly different license plate with a blue stripe on it. However, for using electric motorcycles, a new Police Regulation No. 5 of 2021 requires drivers to have a C1 driver's license as opposed to regular C driver's license. To have a C1 driver's license, drivers have to own a C driver's license for



at least a year. This regulation was opposed by many electric motorcycle stakeholders since it could hinder the growing population of electric motorcycles. Electric bicycles, on the other hand, do not need any specific permits to be operated on the road as regulated in the MoT Regulation No. 45 of 2020.

Ride-hailing operators in Indonesia require drivers who want to register as ride-hailing drivers to submit the requirements that include, but not limited to, identification card, driver's license, certificate of vehicle registration, police certificate of good conduct, certificate of health, etc. To be electric 2W drivers, based on the survey, some additional requirements might be needed such as minimum electrical power at home.

To be able to operate 2W ride-hailing, some states in India require contract carriage permits from transport authorities. The motorcycles should be registered as transport vehicles including the yellow number plate with black lettering for ride-hailing services. Since 2015, China has also required a license for car-based ride-hailing drivers. However, it effectively done since 2019 where ride-hailing operators started to ban drivers without such license (Liao, 2019).

**Identified Policy Gaps:** Learning from India and China, permits should be required for ride-hailing drivers including 2W drivers. With the permit, it would be easier for the government to ensure the safety and security of the service user and to control ride-hailing drivers' behaviour on the road. To make it effective, a ban could be done, as done in China for drivers who do not have such permits. The existence of ride-hailing permits would also enable the government to require all ride-hailing vehicles to be electric, similar to what happens in Karnataka (India) and China, thus allowing higher electrification rate on ride-hailing vehicles.

### 2.2.3. Vehicle Specifications

Based on the MoT Regulation No. 12 of 2019, Indonesian Government regulates 2W specification for ride-hailing purposes, especially for passenger transport service. The government stated that the motorcycle has to meet the aspects of safety, security, convenience, affordability and regularity. Slightly more detailed, it is regulated that the minimum engine capacity for a ride-hailing motorcycle is 110 cc. Other than that, vehicle specification follows a general regulation for vehicle specification standards and is required to function well.

Ride-hailing operators also regulate vehicle specification that could be used for ride-hailing service. For example, Gojek requires drivers to not use motorcycles that have a higher engine capacity of 250 cc or trail type motorcycle. The motorcycle should also have a four-stroke engine and maximum vehicle age 8 years, while Grab limits vehicle age to less than 5 years. These requirements are mainly meant to ensure passengers' safety and comfortability while travelling using their fleets.

To ensure the safety of the electric vehicle operation, the Indonesian Government has regulated the testing procedure of electric vehicles, not specific for ride-hailing service. In 2020, the Indonesian Government released a testing procedure standard for electric vehicles through the

MoT Regulation No. 44 of 2020. For electric vehicles, including electric motorcycles, an extra set of testing is required before it is allowed to be operated. These testing covers electric accumulator, electrical recharging tool, electrical shock protection, functional safety, and hydrogen emission. The Type Testing Unit from the Ministry of Transportation, who is responsible for motorized vehicle type testing, would conduct these extra testing except electric accumulator testing that would be done outside of the Type Testing Unit.

**Identified Policy Gaps:** Learning from vehicle requirements of ride-hailing in India and China, 2W ride-hailing in Indonesia should also be equipped with GPS and might also speed limiter. These and other features that include first-aid box, are actually required for public transportation fleets without fixed routes, such as car-based ride-hailing. These features should be required in 2W ride-hailing vehicles to ensure safety and security of the passenger.

Regarding electrification, some cities in India and China, and also in London and New York, require the newly registered ride-hailing vehicle to be an electric vehicle. France has also committed to remove all diesel vehicles by 2024 and would be fully electrified by 2030. Moreover, Hanoi has planned to end licensing of new motorcycles by 2030 to reduce pollution and congestion as well as supporting public transport. Such policies should be implemented in Indonesia to rapidly increase the adoption of electric vehicles for ride-hailing service in Indonesia by being forced not to buy conventional vehicles. If possible, policy that Hanoi has planned could be implemented to leverage the usage of mass public transportation which more sustainable compared to private vehicle even electric ones.

#### 2.2.4. Operational Patterns

The Indonesian Government currently does not regulate the operational patterns (e.g. distance) for ride-hailing service. However, related to the safety issue, the government has required all public transportation's drivers to not drive more than 4 hours straight before taking a minimum of 30 minutes' break. Ride-hailing motorcycle drivers, even though currently not being classified as public transportation's drivers, could also be required to comply with this requirement of maximum driving duration.

Ride-hailing operators such as Gojek have regulated themselves the maximum distance for each service: 30 km for passenger transport, 25 km for food delivery, and 40 km for goods delivery (Gojek, 2019). Meanwhile, the government in Indonesia currently does not regulate any maximum distance for ride-hailing drivers. Currently, electric 2W ride-hailing fleets in Indonesia are mainly used to take food delivery orders, especially electric bikes that could not accept any other service besides food delivery. Electric motorcycles, such as Viar Q1, are currently available for passenger transport usage even though it was initially used for food and goods delivery only. It is not clearly stated the maximum distance for electric 2W for ride-hailing, but based on the survey, the electric 2W drivers currently travel less compared to the conventional one.

Karnataka of India and Malaysia regulate the maximum distance for ride-hailing service. Karnataka electric 2W ride-hailing policy states the distance from origin destination not to be more than 10 km per trip since it is positioned to serve as feeder for the Metro and buses in the city. Malaysia, through the pilot of conventional 2W ride-hailing, also has limited the maximum distance for a short radius of 5 km. Like Karnataka, Malaysia is intended to position ride-hailing as first and last mile transportation, not to replace public transportation, hence limiting the service distance short.

**Identified Policy Gaps:** Even though the national government has regulated the maximum duration of driving public transportation, maximum distance should also be regulated. For instance, Malaysia and India (Karnataka) regulate the maximum distance to not discourage public transportation. Even though the public transport in Indonesia might not be advanced yet, such a policy should be applied to still encourage the usage of mass public transportation, while also increasing the safety level of motorcycles. This is due to the fact that the longer distance on a single trip using motorcycles means a higher risk of accidents as suggested by a study from Oxley et al. (2013).

2.2.5. Summary

Table 2 Summary of Policy Gaps on 2W Ride-hailing Electrification

Policies	Aspects	Indonesia	India	Vietnam	Malaysia	China	UK	France	US
Incentives: Fiscal	Electric Vehicle Price Subsidies	-	Available	-		30% of the vehicle price; Special price on BYD D1	Up to GBP 7,500 (28% subsidies)		
	Tax Exemption	Up to 100% cut on Purchase Tax	Available	-					Up to 54% cut on Ride-hailing Tax
	Subsidies on charging or charging infrastructure	Available*	Available	-					Available*
	Vehicle Rent Scheme	Available	Available						
	Others	0% Down payment and low interest rate					Extra fee for Uber	Extra fee for Uber except for Uber Green	
Incentives: Non-Fiscal	TDM Exemption	Odd even policy; Low Emission Zone		Congestion charging before 2026			Congestion charging; Zero Emission Zone		
	Others	Types of service; Operational distance							
Ride-hailing Permit	Permit Requirement	Not Required	Required	Required*		Required*	Required*	Required*	Required*
Vehicle Specification	Minimum Engine Size	110 cc	125 cc; less than two years old						
	Emission Standard	-		End licensing for new gasoline motorbike (2030)	-	Must be electric starting 2021*	Must be electric starting 2020*	Must be electric starting 2022*	Must be electric starting 2019*
	GPS	Required*	Required	Required*		Required*			
Operational Patterns	Maximum Distance (km)	Varied, up to 40 km	10 km	-	3- 5 km				
	Maximum Driving Durations (hours)	Four*							

Notes: \*For car-based ride-hailing; In grey: Information not available

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