

ANNEX A

PUBLIC CONSULTATION ON PROPOSED LEGISLATION TO REGULATE ELECTRIC VEHICLE CHARGING

1. The Ministry of Transport (MOT) and the Land Transport Authority (LTA) are seeking feedback on proposed legislation to regulate electric vehicle (EV) charging in Singapore.

I. Background

2. The Singapore Government has articulated a vision to phase out internal combustion engine (ICE) vehicles and for all vehicles to run on cleaner energy by 2040. To achieve this, MOT and LTA are spearheading efforts for a major transition towards EVs under the Singapore Green Plan 2030. These efforts include: (i) narrowing the upfront purchase cost of ICE vehicles and EVs; (ii) expanding the network of charging points islandwide; and (iii) reviewing regulations on EV chargers. This public consultation document focuses on the third prong of MOT's and LTA's efforts.

3. Today, the Energy Market Authority (EMA) regulates the installation of fixed EV chargers by licensed electrical workers (LEW) under the Electricity Act, via the electrical installation licence regime. However, other activities by charger suppliers, charger owners, and charging operators are presently not regulated.

4. We see a strong impetus **to introduce legislation to regulate EV charging across the key stakeholders in the EV charging industry**, while the industry and EV adoption in Singapore are still nascent. There are three reasons why we should do so.

- a. First, public safety is our top priority in the use of EV chargers. Unregulated and ill-maintained chargers pose safety hazards, such as electrical fires or electrocution, which can lead to loss of lives and property. Left unchecked, these chargers may proliferate as EV adoption increases. The proposed legislation seeks to ensure that EV charging services are safe.
- b. Second, it establishes clear standards and regulations for the nascent EV charging industry. This helps to give existing EV charging operators in the EV charging industry (as well as potential entrants) operational clarity, and also ensure that only credible and reliable EV charging operators and EV charger suppliers operate in the industry, for a better consumer experience.
- c. Third, it lays the foundation for an accessible and reliable network of EV chargers, and helps to reduce the need for future retrofitting works.

5. Therefore, MOT intends to introduce a new Electric Vehicle Charging Bill ("Bill") to ensure the safety of EV chargers and to ensure safe, accessible, and reliable provision of EV charging services in Singapore. The Bill will empower LTA to:

- a. Regulate the supply, advertisement, installation, registration, use and maintenance of EV chargers;
- b. Impose a licensing regime for EV charging operators; and
- c. Mandate provision of EV charging in developments that conduct building or electrical works, and facilitate provision of EV charging points in existing strata-titled developments.

II. Regulation of EV Chargers

Coverage of Regulations

6. We propose that all EV chargers come within the scope of the proposed Bill, that is, equipment that is used to supply electric energy to an EV for the purpose of charging. There are in general three types of EV chargers:

- a. Fixed chargers, i.e., chargers that are affixed to the electricity grid;
- b. Non-fixed chargers, i.e., chargers that are not affixed to the electricity grid;
- c. Battery charge and swap stations (BCSS), which charge detachable batteries belonging to an EV.

7. An EV in the proposed Bill refers to a battery electric vehicle, but can also refer to a plug-in hybrid vehicle, whose battery can also be charged using a charger. We will adopt the definition of motor vehicles under the Road Traffic Act 1961, i.e., a vehicle capable of being used on a public road, but **not** Power-Assisted Bicycles (PABs). To avoid doubt, chargers that are exclusively designed for charging Personal Mobility Devices (PMDs), electric vessels or electric aircrafts, will also not be covered by the proposed Bill.

Supply of EV Chargers

8. We propose that LTA be the approving authority for all EV chargers that are supplied in Singapore. **All EV chargers supplied in Singapore will need to belong to a model that is approved by LTA.** This will give confidence that the EV chargers are safe for use. This is similar to the vehicle homologation process today, where all vehicles supplied in Singapore must belong to a vehicle model approved by LTA.

9. To be approved, EV chargers must meet safety and performance standards prescribed by LTA. The latter can include international standards relating to smart charging. For the former, LTA will take into consideration the Technical Reference 25 Electric Vehicle Charging System 2022 (TR 25:2022), which sets out technical safety requirements for EV chargers. The TR 25 is reviewed periodically by multidisciplinary workgroups, which include industry experts and academics, to ensure its relevance.

10. **We propose that chargers that are supplied solely for export or re-export from Singapore be excluded from the requirement to obtain approval from LTA.** This is because such chargers are not intended for use in Singapore, and an EV user in Singapore is unlikely to be exposed to them.

Advertisement of EV Chargers

11. We propose to further minimise the exposure of EV users in Singapore to safety incidents from EV charging by requiring that **only chargers belonging to models that are approved by LTA can be advertised for sale or supply in Singapore**. We refer to advertisements in all forms, whether print, mass media or digital. We propose that LTA be able to direct a person who has advertised a non-approved charger in Singapore to take down such an advertisement, or if necessary, publish a corrective advertisement in place of it.

Installation of Fixed EV Chargers and BCSS

12. To ensure safe installation, we will require fixed EV chargers and BCSS to be installed **by (i) a charger equipment specialist under the supervision of an LEW on the electrical work, or (ii) by a LEW who is also a charger equipment specialist**. The installation must be done according to the relevant standards and procedures in TR 25 and Singapore Standard (SS) 638 Code of Practice for Electrical Installation.

Registration of EV Chargers

13. We propose for LTA to set up an ownership regime for EV chargers by keeping a **Registry of Chargers**. To implement this, we propose to require that all charger owners register their EV chargers with LTA within a reasonable timeframe after they have been installed **and** before they are first used or allowed to be used by the owner (for fixed chargers and BCSS), or before they are first used or allowed to be used by the owner (for non-fixed chargers). There will be a grace period of 12 months for existing charger owners to register their EV chargers with LTA, during which they will still be able to use their chargers even if the chargers are not registered. This ownership regime fulfils two objectives. First, it allows LTA to properly assign accountability and liability on EV charger owners for the use and maintenance of chargers. Second, a comprehensive Registry of Chargers allows LTA to carry out its role better as the master-planner of EV charging infrastructure, such as by identifying, and ramping up deployment at, geographical areas with insufficient chargers.

14. All changes in key details of the charger, transfers of ownership, and decommissioning of the charger must be updated with LTA in a timely manner. LTA may also require charger owners to furnish data on charger utilisation and energy consumption upon request. This will keep the Registry accurate and up to date.

15. We will also require all chargers registered with LTA to be affixed with a **registration sticker**, similar to the tamper-proof identification stickers issued to compliant Personal Mobility Device models today. This is to facilitate easy enforcement against non-registered chargers. It will be an offence to use a false registration sticker, or alter/tamper with a registration sticker.

Use of EV Chargers

16. Charger users should also **use chargers in a safe and responsible manner**. First, users should only use chargers registered with LTA – we propose to make it an offence to knowingly

use unregistered chargers. Second, users should use chargers according to safety regulations determined by LTA. For example, non-fixed chargers should only be used in locations that are accessible for use by their owners and lessees (e.g. private landed homes and industrial garages), and not to the general public.

17. We propose to **disallow the charging of detachable batteries of EVs in homes**. Owners of such EVs will only be allowed to charge at locations white-listed by LTA, where charging of detachable batteries is less risky. We intend it to be an offence for anyone who charges at non-white-listed locations, which include homes. This is because of the higher safety risks posed by home charging, such as battery fires which are typically a result of inappropriate charging behaviour. Companies that wish to operate their own chargers for detachable batteries will be able to work with LTA to white-list charging locations.

Maintenance of EV Chargers

18. It is important that chargers are kept in good working condition such that they do not pose danger to persons or property. **We propose that all charger owners be required to ensure that their EV chargers are inspected periodically.** For non-restricted access locations, inspection must be done every 6 months by an equipment specialist, and every 12 months by an LEW. For restricted access locations (i.e., landed homes), inspection must be done every 2 years by an equipment specialist. This is as per the recommendations under TR 25:2022. It is common to have such periodic inspection arrangements for other infrastructure, such as lifts and escalators. Charger owners will be required to keep proper inspection records of their EV chargers and furnish them to LTA upon request. If a charger is not found in good working condition, the charger owner must take active steps to restore the charger to good working condition, and ensure that the charger does not pose danger to anyone while its deficiencies are being rectified.

Measures to Stop Unsafe Activities Relating to EV Chargers

19. There may be instances which will require LTA to intervene quickly to stop potential serious harm caused to persons or property. Some of these instances include:

- a. Usage of a tampered or illegally modified charger
- b. Usage of a charger with serious manufacturing defects
- c. Usage of a charger that is not installed properly

20. In these instances, **we propose for LTA to issue a safety directive to an EV charger owner, an EV charger supplier, or an EV charging operator to mitigate or eliminate the risk of such serious harm expediently.** A person to whom the safety directive is issued may be asked to decommission, uninstall, rectify or forfeit the charger as necessary to effectively mitigate or eliminate the risk. If LTA is satisfied that the person to whom the safety directive is issued has failed to comply with the directive, **we propose that LTA have the powers to enter premises and perform the action(s) specified in the safety directive so that the risks to persons or property are effectively dealt with.** These powers are only exercised in very serious cases of dangerous activity relating to chargers.

III. Licensing of Electric Vehicle Charging Operators (“EVCOs”)

Licensing Regime

21. Beyond charger safety, it is critical to ensure that the public charging network is reliable. EVCOs assume responsibility in providing quality and reliable EV charging services, which will form a key part of transport infrastructure in Singapore.

22. **We propose for LTA to introduce a licensing regime for EVCOs under the Bill. Any entity or person that provides EV charging services in Singapore in the course of business will need to be licensed.** This licensing regime will generally apply to commercial operators. Licensing levers are necessary for LTA to effectively enforce against breaches of reliability and quality standards, and respond nimbly to developments in the nascent EV charging industry. For avoidance of doubt, this activity is distinct from electricity retailing.

23. Licensees will be subject to a set of requirements by LTA to ensure that reliability and quality standards are met. This will include, amongst others, requirements for data sharing, third party liability insurance, payment methods, cybersecurity, and service downtime recovery. The requirements will take into account whether the licensee is providing a charging service using a fixed charger/BCSS or a non-fixed charger; and whether the licensee is providing a charging service for the general public or for private use¹.

Step-In Safeguards for EV Charging Services

24. Given the potential significant public disruption, it will not be acceptable for a large portion of Singapore’s EV charging network to be disrupted for an extended period of time. **We propose for Minister (Transport) to be able to designate large-scale EVCOs that would be subject to step-in orders. If a designated EVCO creates prolonged, large-scale disruption of EV charging services for EV users, we propose to empower LTA to manage, or direct a step-in operator to manage, the EVCO’s assets and operations temporarily, in the interest of service continuity.** This is a transitional measure until EV charging services can be sufficiently restored. These powers will be exercised as a last resort after measures such as penalties, warnings, or management changes initiated by the defaulting EVCO have not garnered performance improvement. An affected EVCO will be given an opportunity to be heard before a step-in order is made.

IV. Mandatory EV Charging Provision For Developments

25. EV charging will be an essential service that needs to be provided at most carparks by 2040, given the projected widespread adoption of EVs by then. At the same time, many

¹ We intend for a charger for private use to cover one that is owned and used exclusively by a household or entity for its own purposes, as well as a charger owned by an entity which allows other entities exclusive usage by way of contractual agreement. For avoidance of doubt, the entity which owns the charger can enter into contracts with multiple entities – as long as the charger is to be used only by these group of entities.

developments, including those being planned today, will mostly be in use well beyond 2040. Developers should therefore ‘future-proof’ their developments to support EV charging, ideally without incurring costly retrofitting works.

26. There are two types of provision to be made in order for developments to be ‘future-proofed’ for EV charging:

- a. Electrical equipment in the electrical switch room supporting the carpark, e.g., main switchboards, distribution boards, power transformers, circuit breakers and power cables, need to provide sufficient electrical load to supply electricity to EV chargers. This is known as **passive provision**.
- b. EV chargers need to be fully wired and installed at designated lots, turned on and made ready for use. This is known as **active provision**.

27. **As a start, MOT and LTA propose to mandate that all developments² with carparks undergoing selected building works make passive and active provisions for EV charging.** This is to ensure that EV charging services can be more widely accessible. These selected building works are:

- a. Erection of a building
- b. Increase of the existing Gross Floor Area (GFA) of a development by $\geq 50\%$
- c. Increase of approved electrical load of a development, where the new approved electrical load is $\geq 280\text{kVA}$

28. Developers that conduct these building works will usually make enhancements to the electrical infrastructure of the development, making this an appropriate juncture to ensure that sufficient provision is also made to support EV charging. From 2018 to 2020, there were a total of 130 building projects that involved the erection of a building, 51 building projects that involved the increase in existing GFA by $\geq 50\%$, and 383 instances of increase in approved electrical load where the development has a new approved electrical load of $\geq 280\text{kVA}$. Such a move will reduce major retrofitting in future when the demand for EV charging point ramps up.

29. We propose for Minister (Transport) to have the power to extend the mandate to other building works in future, so that more developments can be ‘future-proofed’ for EV charging.

30. We propose that **developments subject to the mandate should install charging points in at least 1% of their total car and motorcycle parking lots, and provide passive provision enough to support 15% of their total car and motorcycle parking lots, with 7.4kW chargers.** Based on the average mileage of car drivers in Singapore and the average effective range of a typical EV, a driver only needs to charge his EV once every five to seven days. Therefore, it is not necessary to support every parking lot with chargers, even in the long run with mass EV adoption. Developers may opt to provide chargers of different power ratings, as long as the combined power output offered by all the chargers of a development meets the mandated passive provision threshold. For developments with very small carparks (i.e.,

² All developments owned by Government Ministries, Statutory Boards and Organs of State are exempted from this mandate. The ‘future-proofing’ of such developments will be carried out through mechanisms available to the Government.

those with fewer than seven car and motorcycle parking lots), we intend for them to be exempted from the active provision mandate.

31. We aim to minimise additional paperwork for developers by leveraging the existing building control process as far as possible.

- a. For developers that undergo the building control process for the works they undertake, we propose for them to demonstrate compliance with the mandate when they submit their projects to LTA for clearance during the Temporary Occupation Permit (TOP) and Certificate of Statutory Completion (CSC) stages.
- b. However, for developers that do not undergo the building control process for the works they undertake (e.g., increase in approved electrical load), LTA will need to establish a separate regime to verify compliance, and undertake enforcement against non-compliant developers. For example, LTA could require the developer to submit a declaration of passive provision within a reasonable time period after receiving SP Services' approval of the new electrical load of the development.

32. We recognise that the above mandate will not apply to most existing developments, if they do not conduct the building works specified in [para 27](#). At the same time, we understand that residents in some strata-titled condominiums today face challenges in having their resolutions to install EV charging points passed by their Management Corporation (MCST)³, even in cases where there may be a majority of residents in favour of installing EV charging points.

33. Hence, we are working with the Ministry of National Development (MND) and the Building and Construction Authority (BCA) to consider **lowering the resolution threshold for EV charger installation proposals for strata-titled developments to the level of an ordinary resolution in the Building Maintenance and Strata Management Act, for lease contracts with duration up to 10 years and for proposals that do not draw down on the MCST funds**. For proposals that exceed a lease duration of 10 years and/or involve usage of MCST funds, the prevailing resolution requirements under the BMSMA will continue to apply. MCSTs retain control over the decisions pertaining to the provision of EV chargers in their strata-titled development.

V. Conclusion

34. Your feedback is important to us. All comments received will be considered. However, we will not be able to individually acknowledge or address every comment. To maintain confidentiality of feedback contributors, we will anonymise and aggregate the results of this public consultation.

35. Thank you.

³ Rules on the requisite threshold to pass a resolution on the installation of EV charging points come under the purview of the Building Maintenance and Strata Management Act ("BMSMA"), which sets out a self-governing framework for MCSTs. Based on the BMSMA, the threshold for installation of EV charging points could vary from an ordinary resolution to a 90% resolution, depending on factors such as the proposed ownership of the EV chargers and the length of lease in question.