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## ELECTRIC SCOOTERS AND THE SAFETY OF ROAD USERS – SELECTED LEGAL ASPECTS

In recent years, there has been a real boom in electric scooters in European cities. Unfortunately, delight in scooters is also accompanied by negative emotions - they pose a real threat to road users. Media from many European countries reports about dangerous events involving electric scooters. Only in France alone, during the years 2013-2017, there were 1,378 accidents involving electric scooters, of which 5 were fatal injuries in 2017. At present, there is a lack of statistical data illustrating these events in Poland, but the number of media reports over the last 7 months indicates that this is a serious problem. The more serious is that at the moment the changes announced by the legislator have not come into force to this day and until then the scooter will be considered a pedestrian. This article discusses the legislative changes proposed by the legislator regulating electric scooters, as well as analyzes the regulations in force in other European countries regulating this issue.

**Keywords:** road traffic safety, safety of road users, pedestrian safety, analysis of safety status, safety of electric users on scooters.

In the era of struggle for the environment electric means of transport are becoming more and more popular. In recent years, in European cities one can see a real boom on electric skateboards, segways and electric scooters. In particular, the latter have gained popularity. Unfortunately, the enthusiasm over scooters is also accompanied by negative emotions. Pedestrians, cyclist and at last drivers do not want them – they are afraid of their health and safety. The electric scooters arouse more and more emotions. The issue of safety in common communication, especially in road traffic in the era of technological, legal or infrastructural changes, is the subject of constant deliberations and research. The analysis of the Police statistics, published annually on the websites of this institution, as well as the analysis of research carried out by the National Road Safety Council (National Road Safety Council, <http://www.krbrd.gov.pl/pl/monitoring-zachowan.html>, 2019), indicates that the safety of road users, in particular pedestrians, is one of the main problems in the modern world. Media reports from many European countries about occurrences involving electric scooters users are alarmingly high. Only in France alone, in the years 2013-2017, there were 1 378 accidents involving people directing electric scooters, of which 5 people died in 2017 (<http://www.leparisien.fr/societe/les-accidents-de-trottinettes-en-forte-hausse-10-10-2018-7916037.php>, 2019). At the moment, there are no statistical data illustrating these events in

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Poland, nevertheless, the number of media reports in the last four months indicates that this is a serious problem. The upward trend clearly indicates that the problem of road users' safety in the context of electric scooters should be a priority for the competent state authorities, including the executive, as well as for the services responsible for security in communication.

## 1. INTRODUCTION

It all started with city bikes, later carsharing developed at a staggering pace, and now the streets of large cities conquer micro-mobility in the form of electric scooters. The idea of vehicle sharing is becoming more and more popular, regardless of the number of wheels. Although the scooter is a convenient and, above all, a compact means of transport, city authorities cause considerable problems. All because it is difficult to classify a person driving a scooter. Is it still a pedestrian, or maybe a driver? Or how to treat them: as a cyclist or a rollerblader? Nobody knows that, especially the Police, and unfortunately road events (or rather "pavements") are not lacking. And the Police are spreading their hands since they do not know who and what to punish. The collisions on the pavements are on the agenda, and the Police record them as collisions, not specifying who entered whom and who had the right to be where the incident occurred. The law does not clearly state what status electric scooters have. The lack of a statutory definition results in even such absurd situations that took place in Warsaw when pedestrians were punished with a fine for causing a collision with the driver of an electric scooter. The Police reaction to the incident resulted from the fact that the electric scooter is a device and cannot be classified into any type of defined vehicles that must meet certain technical conditions. Therefore, it is difficult for the user of such a device to be the driver of a vehicle in the light of statutory regulations (Traffic Law, i.e. *JoLoF* 2018, item 1990 with later amendments). Therefore, the Police interpret traffic law in a certain way, equating electric scooters with pedestrians. This way of interpreting the law seems to be wrong. A different but equally controversial classification of the electric scooter was taken by the Lublin-West District Court in Lublin, III Criminal Division of December 20, 2016, Ref. act III K 302/15 (Court Judgment Analysis System, 2019).

The case, on the basis of which the court issued this precedential ruling, concerned the mortal deduction of a 10-year-old boy moving on an electric scooter on the sidewalk, at a speed of about 22 km/h. At the pedestrian crossing the boy hit the side of the bus, for which – just like in the case of the victim – the green light was on. As a result of the accident, the boy died. In the present case, the key was to determine whether the boy had the right to move on the sidewalk and drive the vehicle onto the pedestrian crossing – i.e. whether the person moving on an eclectic scooter is a pedestrian. The District Court in Lublin showed that despite the lack of specific provisions regarding electric scooters, the following conclusions can be drawn from the other provisions of the Road Traffic Law Act – an electric scooter cannot be treated as a pedestrian. Driving a scooter, he is also not driving a bicycle. The grounds of the judgment show that an electric scooter, such as an aggrieved one, can only be treated as a moped, "i.e. a two- or three-wheeled vehicle equipped with a combustion engine of a cylinder capacity not exceeding 50 cm<sup>3</sup> or an electric motor with a power not exceeding 4 kW, whose design limits the speed of travel to 45 km/h" (Court Judgment Analysis System, 2019). The court found the bus driver not guilty, he did not slow down enough before the pedestrian crossing, and he did not take into account that the child was approaching the crossing.

There is no precedent law in Poland, so the judgment of the court and the opinion in this case refers only to one specific case. If the current situation remains unchanged, each individual case may end up in court, and the judgments may be different depending on the interpretation used. Nevertheless, as of now, as long as the gap in Polish law is not “patched” by people moving on electric scooters, or other electric vehicles have the status of pedestrians. Therefore, such persons should remember that in accordance with art. 11 paragraph 1 of the Road Traffic Act, pedestrians walk on the sidewalk or pedestrian road. In another case, pedestrians using electric vehicles on the road for bicycles or on public roads, in residential areas and in traffic zones may receive a penalty mandate – the tariff predicts a mandate from 20 to 500 PLN.

## 2. AN ATTEMPT TO DEFINE “AN ELECTRIC SCOOTER”

The road traffic law does not expressly speak about the movement of the electric scooter. Nevertheless, the fact that the Road Traffic Act does not explicitly refer to the electric scooter does not mean that it is impossible to draw any conclusions from other norms of this law as to the nature of the item and the manner in which it should move on public roads. Certainly, an electric scooter cannot be treated as a pedestrian, i.e.

“a person who is outside the vehicle on the road and does not carry out works or activities provided for by separate regulations; including a person driving, pulling or pushing a bicycle, moped, motorcycle, stroller, handicap or wheelchair, a person in a wheelchair, as well as a person under 10 years of age driving a bicycle under the care of an adult” (Article 2 point 18 of the Road Traffic Act).

When riding a scooter, it is also not driving a bicycle, because

“a bicycle is a vehicle with a width not exceeding 0.9 m, moved by the strength of the person riding this vehicle; which can also be equipped with an electrically-operated auxiliary electric drive supplied with a voltage of no more than 48 V with a nominal continuous power not exceeding 250 W, whose output power decreases gradually and falls to zero after exceeding the speed of 25 km/h” (Article 2, point 47 of the Road Traffic Act), as the electric scooter motors have a power output of up to 1,600 W.

An eclectic scooter cannot be classified as a vehicle. Paragraph 2 (31) of the Road Traffic Act defines the term 'vehicle' as 'a means of transport intended to travel on the road and a machine or a device adapted to it'. There are many different divisions and vehicle classifications, including due to the load capacity, total weight, own weight, capacity and engine power, the number of people being transported or due to the nature of their work (Stefański, 2000).

Road traffic law divides the vehicles into:

- motor vehicle – i.e. a vehicle equipped with an engine, except for a moped and rail vehicle (Article 2, point 32);
- motor vehicle – i.e. a motor vehicle whose design allows driving at speeds exceeding 25 km/h; this term does not include an agricultural tractor (Article 2, point 33);
- low-speed vehicle – i.e. a motor vehicle, the design of which limits the speed of travel to 25 km/h, excluding the agricultural tractor (Article 2, point 34);

- a unit vehicle – i.e. a combination of vehicles consisting of a motor vehicle joined to the trailer (Article 2, point 35);
- special vehicle – i.e. a motor vehicle or a trailer intended to perform a special function, which makes it necessary to adapt the body or to have special equipment; the vehicle may carry persons and things related to the performance of this function (Article 2, point 36);
- vehicle used for special purposes – i.e. a motor vehicle adapted in a special way to carry persons or loads, used by the Armed Forces of the Republic of Poland, the Police, the Internal Security Agency, the Intelligence Agency, Military Counterintelligence Service, Military Intelligence Service, Central Anticorruption Bureau, Guard Border, fiscal control, Customs Service, fire protection units, Road Transport Inspection and Prison Service (Article 2, point 37);
- privileged vehicle – i.e. a vehicle that sends light signals in the form of blue flashing lights and at the same time sound signals of variable tone, driving with switched on low beam or road lights; this term also includes vehicles in a column at the beginning and at the end of which there are privileged vehicles sending additional light signals in the form of red flashing light (Article 2 (38));
- historic vehicle – i.e. a vehicle which on the basis of separate regulations has been entered in the register of monuments or is located in the voivodeship register of monuments (Article 2, point 39).

Regardless of which vehicle we are dealing with, it is not possible to qualify the electric scooter to any of the above-mentioned groups.

In the current legal state, an electric scooter could be treated only as a moped, because in the light of art. 2 par. 46 of the Road Traffic Act it is a two- or three-wheeled vehicle equipped with a combustion engine with a cylinder capacity not exceeding 50 cm<sup>3</sup> or an electric motor with a power not exceeding 4 kW, whose design limits the speed of travel to 45 km/h. Unfortunately, there is a problem here – you can drive a motorbike on the street, but electric scooters are legally impossible to navigate for a few important reasons. First of all, they cannot be moved by persons under the age of 18 who are not entitled to AM driving license. Secondly – even people with such rights, or adults, cannot move a moped that does not have adequate equipment. And electric scooters do not have it. In accordance with the Regulation of the Minister of Infrastructure of 31 December 2002 on the technical conditions of vehicles and the scope of their necessary equipment, the moped should be equipped, among others, with a front low beam and driving lights, a rear position light, a rear reflector, turn signals at the rear and at the front, a brake light “stop”. In addition, the moped must be registered, have a current review, and the owner must also purchase civil liability insurance. The absence of mandatory approval and policy equipment excludes the recognition of electric scooters as mopeds.

Despite the fact that the provisions of the Road Traffic Act do not specify the status of electric scooters, it is necessary to emphasize that such persons are obliged to participate in traffic and are therefore obliged to observe the basic principles of safety in traffic defined for example in Art. 3 and 4 of the Road Traffic Act. It is clear from the aforementioned articles that the participant and other person on the road are obliged to exercise caution, avoid any action that could endanger the safety or order of road traffic, make this move difficult or disturb the peace or public order in connection with the movement and expose anyone to the detriment. Traffic participants have the right to count on others complying

with the rules. As you can see, the current situation is uninteresting and you really need to urgently refine the issue of electric scooters. It is hard to imagine treating them as pedestrians. On the other hand, recognizing them as a moped (with the need to do all the actions described above) also makes no sense. What remains – it seems that the legislator should classify scooters as bicycles by adding them to the definition contained in the Road Traffic Act.

### **3. THE DRAFT OF LEGAL REGULATIONS REGARDING A PERSONAL MOBILITY DEVICE (PMD)**

The rapid popularization of electric scooters as an attractive, alternative means of transport enabling efficient and fast moving around the increasingly crowded streets of big cities, in fact created a situation in which the law could not keep pace with technical progress. The first attempts to change the law have already been made three years ago – the definition of a personal mobility device (hereinafter PMD) was to be introduced to the Road Traffic Law, as well as provisions defining the way of its movement. However, they were excluded from the works due to the fact that they went beyond the scope of implementation into the national legal order of the provisions of Directive 2014/45 / EU (Directive of the European Parliament and of the Council, 2014) of the European Parliament and of the Council on periodic roadworthiness tests of motor vehicles and their trailers. An increasing number of incidents involving electric scooters and their effects have prompted the government to work on legislation on personal transport equipment.

Ministry of Infrastructure beginning of June this year presented a package of proposals on regulating the rules of personal mobility device traffic (Service of the Republic of Poland, 2019), in which this concept was covered. The package of proposed changes is to address the following issues:

- 1) in the Act – Road Traffic Law, a new definition will appear in § 2: “Personal mobility device (PMD)”: a device designed to move only by the driver located on this device, with a width not exceeding 0,9 m, length not exceeding 1.25 m, unladen weight not exceeding 20 g, equipped with electric drive, whose design limits the speed of travel to 25 km/h;
- 2) in §2 in paragraph 47 of the Road Traffic Law, the definition of the bicycle contained therein is to be supplemented: “...this term also includes a personal transport device”. Thanks to this clarification of the definition of a bike, PMD users and cyclists will be covered by the same rules. Therefore, cyclists – as before – but also moving PMDs will be obliged to move: roads for bicycles, passes for cyclists, lanes for bicycles or a road carriage, where the permissible speed is not more than 30 km/h;
- 3) the project also provides for exceptional situations – when the PMD user will be able to navigate the sidewalk or pedestrian route, when the width of the sidewalk along the road, where traffic is allowed at a speed greater than 30 km/h is at least 2 m and lacks a separate roads for bicycles and lane for bicycles. In this situation, the driver of the personal transport equipment, using a pavement or a pedestrian road, is obliged to drive slowly, take special care and give way to pedestrians;
- 4) the Ministry has also prepared a list of behaviors prohibited to the head of the PMD. Such as: leaving on the road, stop or other place intended for traffic, bicycle and personal transport equipment, if it impedes traffic or threatens its safety; pulling a personal transport vehicle of another vehicle; using a public device equipped with

- an electric drive other than a personal transport device on a public road; use of a footpath or pedestrian road except in the cases of specific exceptions; directing the personal transport device to a person under the age of 10;
- 5) in addition, the drivers, for example, a scooter in the age range of 10–18 years will have to have a bicycle card;
- 6) as in the case of cyclists, riding in helmets will not be obligatory, but recommended;
- 7) PMD vehicles will not require registration, but must be equipped with an efficient brake and lighting;
- 8) owners of vehicles not meeting the technical requirements specified in the Act will face penalties in the amount of PLN 500 to PLN 10,000 for each infringement (Szymaniak, 2019).

The Ministry of Infrastructure also pointed out that people moving on scooters that are powered by muscle power will still be treated as pedestrians.

The changes proposed by the Ministry of Infrastructure are not without drawbacks. Still, even after the planned changes in life, in certain situations the PMD will remain on them (e.g. if the bicycle route ends, and the parallel road will predict higher speeds than the 30 km/h limit). The lower age limit of PMD users also raises doubts. It seems that, as in the form of European decisions – it should be determined not at the level of 10 years, and 14-15 years. In view of the fact that users between 10 and 18 years of age will have to have a bicycle card, the question of the scope of the exam for this card is asked. The project has not yet found its way to the parliament, which allows us to hope that it will be subject to opinions and consultations, including regulations based on the European solutions.

#### **4. COMPARISON OF REGULATIONS REGARDING ELECTRIC SCOOTERS IN SELECTED EUROPEAN COUNTRIES**

The countries that have regulated the issues of moving electric scooters are, among others: Norway, Belgium and Denmark, Germany, Austria. The states that have recently made legislative changes in the discussed issue are Germany, Austria and France, and these changes will be a reference to the proposal of the Ministry of Infrastructure.

##### **4.1. German regulations**

Until recently, it was not possible to legally move around an electric scooter in cities in Germany, because there were no provision for a specific place on the road foresaw such a vehicle. In May this year The Bundesrat adopted rules on driving on electric scooters – Regulation on the share of electric vehicles in road traffic of 4 April 2019 (Verordnung über die Teilnahme, 2019). According to new regulations, which came into force in June this year, scooters can ride at a speed of not more than 20 km/h, and scooters cannot have a power of more than 500 W. They should move on a cycling route, and if not ma – on the road. They have no right to enter the pavement.

Scooter drivers must be over 14 years old. No document or license is required to drive a scooter, but third party liability insurance is required. Electric scooters must have a sticker confirming the insurance of a small motor vehicle, such as that used in Germany mopeds or scooters. It costs several dozen euros a year (about 60–90 euro).

The mandatory equipment of the electric scooters also includes: two independent brakes, a horn, as well as lighting (white) and rear (red), and a license plate with dimensions of 6.5 cm x 5.3 cm. For riding on an electric scooter, as in the case of cyclists, a helmet is not

required. The helmet is required in Germany only when you get on a moped or a scooter. After the entry into force of these provisions, the last EU country that has not legally regulated electric scooters and makes it impossible to use them, will be Great Britain (Transport Publiczny, 2019).

#### **4.2. Austrian regulations**

In Austria, this issue was regulated by the 31st Amendment to the Road Law (Straßenverkehrs-Ordnung Verordnung vom 06.03.2013, 2019), which came into force on 1 June 2019 – it regulates, among other things, the proper use and fitting of electric road scooters admitted to traffic in Austria. Amendments to the law apply in all Länder in Austria. According to the new regulations, which have been in force since June this year, scooters can drive at a speed of not more than 25 km/h.

The electric scooter can only be used on bicycle roads, if there is no bicycle route, one needs to use the roadway. It is forbidden to move electric scooters on pavements. In pedestrian zones and residential areas it is allowed to move around with the electric scooter, provided that the speed is adjusted to pedestrian traffic, which in practice means that the scooter will move using the strength of the leg muscles. It is allowed to park electric scooters on pavements, provided that its width is not less than 2.5 meters.

It is forbidden to use the phone while driving with the electric scooter, except for the hands-free car kit. It is not allowed to drive a scooter when the blood alcohol concentration is higher than 0.8 per thousand.

The age limit for electric scooters users has been set at 12 years old. Younger children can use electric scooters provided they are looked after by a person aged min. 16 years. Children under 12 must drive in helmets.

Mandatory equipment for electric scooters includes a brake, as well as white light (front) and red (rear). Electric scooters, whose maximum speed does not exceed 25 km/h, and the power is not greater than 600 W, do not need to have license plates or insurance. Vehicles with higher parameters are treated as motorcycles and then the regulations impose an obligation to register such a vehicle and also to purchase compulsory insurance. In addition, the person driving such a vehicle must be at least 15 years old and hold a driving license of category AM or B.

#### **4.3. French regulations**

Electric scooters, whose number in Paris is estimated at 20,000, have become – as the agency AFP (French Press Agency) writes – a real nuisance for the mayor, because there is a lack of appropriate legal provisions for this increasingly popular means of transport.

In France, from the beginning of the year, a total of six deaths and almost three hundred injured in accidents caused by users of popular two-wheelers were addend (Januszevska, 2019). France, to prevent more accidents from September this year, will introduce new legislation prohibiting driving electric scooters on pavements (tvn24, 2019).

The French Ministry of Transport has prepared a decree that regulates the electric movement of such vehicles. The details of the document are revealed by one of the Paris dailies – “Le Parisien”. According to the journal, the document forbids driving electric scooters on pavements and limits their maximum speed to 25 km/h. Models accelerating to higher speeds will have a total ban on moving around public areas.

On electric scooters, one will not be able to travel on roads outside built-up areas – only on roads for bicycles running alongside them. In cities, such vehicles will be able to drive

on roads for bicycles and on roads where the permissible speed does not exceed 50 km/h. In places of particularly pedestrian traffic, the speed limit has been introduced – 8 km/h. They can be deposited only in specially designated places. It was also announced that they would be completely prohibited from moving along the sidewalks, and that a penalty of € 135 would be punished for breaking this provision.

However, this is not the end of the restrictions found in the decree. The legislator also introduced the obligation to equip scooters driven by electric motors with front and rear lighting as well as a horn. Additionally, at night or during the day when the visibility is limited, one will have to ride in a reflective vest. The regulations also specify that electric scooters may be used by children over 8 years of age, and for minor drivers (up to 12 years of age) they prescribe driving in a protective helmet. It was also forbidden to carry scooters of other people and use headphones while driving.

The new rules will come into force as early as September. A similar restriction is already in force in Paris (Kaczmarczyk, 2019).

Table 1. Comparison of selected aspects of the regulation of electric scooters in Germany, Austria and France

	GERMANY	AUSTRIA	FRANCE	POLAND
<b>age</b>	14 years old	12 years old, children under 12 years old under the care of a person aged min. 16 years old	8 years old	10 years old
<b>max speed</b>	20 km/h	25 km/h	25 km/h, and in the pedestrian zone, 8 km/h	25 km/h
<b>permissible road zone</b>	bicycle lanes, if there are no such lanes, then roads,	bicycle lanes, if there are no such lanes, then roads,	bicycle lanes, if there are no such lanes, then roads,	bicycle lanes, if there are no such lanes, then a road, a speed limit of 30 km/h, and if there is not, then a sidewalk
<b>helmet</b>	no obligation	compulsory for children under 12	compulsory for children under 12	no obligation
<b>compulsory equipment</b>	<ul style="list-style-type: none"> <li>– 2 independent brakes</li> <li>– a bell/a horn</li> <li>– front and rear lighting</li> <li>– a plate</li> <li>– liability insurance policy sticker</li> </ul>	<ul style="list-style-type: none"> <li>– <b>2 independent brakes</b></li> <li>– <b>a bell/a horn</b></li> <li>– <b>front and rear lighting</b></li> </ul>	<ul style="list-style-type: none"> <li>– 2 independent brakes</li> <li>– a bell/a horn</li> <li>– front and rear lighting</li> <li>– a reflective vest</li> </ul>	<ul style="list-style-type: none"> <li>– a brake</li> <li>– front and rear lighting</li> </ul>
<b>insurance</b>	compulsory	no obligation	no obligation	no obligation
<b>driving license</b>	no obligation	no obligation	no obligation	children aged 10-18 years bicycle card

Source: author's own research.

## 5. SUMMARY

The proposals of changes in the law proposed by the Ministry of Infrastructure will undoubtedly improve the safety of road users, however, as it was already worth mentioning, we would like to introduce some additional solutions, such as increasing the age limit for children who could independently move electric scooters up to the age of 12, introduce the obligation to ride in a helmet, as well as additional scooter equipment with a bell/a horn. It is also very important to determine the speed limit when driving on the sidewalk or in places of special pedestrian traffic. This is due to the fact that if there is no bicycle path, a scooter will be able to move on the roadway, but only if it has a 30 km/h limit. In practice, this will mean that the electric scooter will not be able to drive on most roads in cities, where, as a rule, the speed limit is 50 km/h. The roadway will allow one to drive, for example, in a residential area with a limit of 20 km/h. However, if there is neither a bicycle infrastructure nor a road with a speed limit of 30 km/h, then the electric scooter will only be able to move along the sidewalk. So the situation will not change much. There are very few bicycle paths in Polish cities, as well as roads with a limit of 30 km/h. And what in the proposed project is to be an exception, i.e. driving on pavements, will become a rule in fact. Of course, in this case, the driver will be obliged to slow driving and be especially careful, but in the absence of speed limits when driving on the sidewalk, we are on common sense. However, it is worth remembering that no regulations will guarantee the participants of the security movement if they do not apply to them themselves, and the state apparatus will not enforce penalties against the defiant.

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