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The Low-Carbon Transport Fund as a Source of Financing the Electromobility Development in Poland

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Abstract. The Act on electromobility introduced in Poland, within the scope of its regulation, implements a European directive on the development of alternative fuels infrastructure, the aim of which is to minimize the dependence on oil and to reduce the impact of transport on the environment. An important factor in the development of electromobility in Poland is the increased availability of charging infrastructure. The aim of the publication is to analyze the Low-Emission Transport Fund in terms of financing the electromobility development in Poland. The article consists of four parts preceded by an introduction and ending with conclusions. The applied research methods are: critical analysis of the literature (theoretical approach to issues related to low-emission economy, electromobility and distribution system operators), secondary documents analysis (desk research) relying on presentation of included in legal acts and program documents assumptions and logical reasoning method contributing to presentation of applications and implementation of the purpose of publication. The conclusions included in the final part of the article concern the identification of the planes of the Low-Carbon Transport Funds impact in the context of its functioning as a financial instrument.

Introduction

On February 22nd, 2018, the Act of January 11st, 2018 on electromobility and alternative fuels (Act of 11 January, 2018) became applicable in Poland. The implementation of the provisions of the Act on electromobility translates into fulfilling Poland's obligations, at the level of EU directives, to support the development of the market and infrastructure necessary for using alternative fuels – including electricity – as well as achieving objectives for the deployment of this infrastructure (Directive..., 2014).

In April 2018, the legislative process of the amendment to the Act on biocomponents and liquid biofuels, which creates the Low-Carbon Transport Fund (LTF), began. The works ended with the publication in the Journal of Laws of the Act of 6th June, 2018 on the amendment to the Act on biocomponents and liquid biofuels and certain other acts (Act of 6 June, 2018), which became applicable from 28th July, 2018. The published Act on biocomponents introduced new tool – LTF, whose task is to finance projects listed, among others in the Plan for the Development of Electromobility in Poland (Development plan..., 2018), National Framework for the Development of Alternative Fuels Infrastructure (National framework..., 2017) and the Act on Electromobility.

1. Electromobility in Poland

In addition to such important issues as the development and principles of the functioning of charging infrastructure, or clean transport areas, the Act on electromobility introduces a number of incentives for users of electric vehicles (EVs). Among them, the following can be distinguished: excise duty and hybrid abatement, the possibility of increasing amortization write-offs for companies, exemption from parking fees or the possibility of moving EVs to bus lanes. However, these mobilizing factors do not include the development of charging infrastructure, and that is why they may be insufficient to achieve the assumed effects. As research has shown, the main obstacles to the development of electromobility (eM) in Poland are the high costs of purchasing EVs, a limited number of charging points and a limited range of EVs (Obserwatorium..., 2018).

Increasing the availability of charging infrastructure is therefore an important factor in the eM development in Poland. The Act on electromobility assumes that the EV charging infrastructure will develop on market principles. Despite the assumption that it will proceed without the need for state interference, however, the minimum number of charging points installed by the end of 2020 in generally accessible charging stations has been determined – as shown in table 1.

Table 1. Minimum number of public charging points installed in municipalities by December 31, 2020.

Minimum number of generally accessible recharging points	Number of inhabitants in the commune	The number of registered cars in total	Number of cars per 1,000 inhabitants
1,000	>1,000,000	≥600,000	≥700
210	>300,000	≥200,000	≥500
100	>150,000	≥95,000	≥400
60	>100,000	≥60,000	≥400

Source: own elaboration based on the Act of 11 January (2018), art. 60.

However, the Act on electromobility does not specify the entities responsible for the construction of charging stations. However, this does not exclude the activity of state entities, including companies with Treasury shareholding in this area. The state of implementation of the above assumptions (table 1) will, however, be subject to verification. The mayor or city president shall, by January 15th, 2020, prepare a report on charging points in the area of the commune installed in public charging stations (Act of 11 January, 2018, art. 61). If the report shows that the minimum number of charging points has not been reached, the municipal executive body is obliged to prepare a plan for the construction of generally accessible charging stations by 15th March, 2020, specifying the location and schedule for the construction of the station. Then the plan is passed for consultation with the inhabitants of the commune and agreed with the distribution system operator (DSO), on whose area of operation the deployment of generally accessible charging stations is planned. The document prepared in such a way is approved by the commune council. On its basis, DSO develops a program that defines the technical and economic conditions for connecting charging stations (Act of 11 January, 2018, art. 62).

The development of the charging infrastructure is related to ensuring the demand for services provided with their participation and building public awareness of the change of the transport model into low- and zero-emission transport. At the same time, the degree of functionality of EVs depends on the location of charging stations, taking into account the maximum distance that can be covered by a fully charged EV (Drożdż, 2018a, p. 17). Precursors in this area will be public administration units. From January 1st, 2025, supreme and central state administration bodies are to ensure that the share of EVs in the fleet servicing their units is at least 50% (from 1st January 2020 – 10%, from 1 January 2023 – 20%) (Act of 11 January, 2018, art. 34, 68). A similar obligation also applies to local government units (LGUs) where the number of inhabitants exceeds 50,000 – in this case the EV share in the fleet of used vehicles is to amount to at least 30% (from January 1st, 2020 to 20%) (Act of 11 January, 2018, art. 35, 68). In turn, from January 1st, 2028, LGUs in which the number of inhabitants exceeds 50,000 provide a public transport service – or commission it – with the use of zero-emission buses, whose share in the fleet of used vehicles in the area of this LGU is at least 30% (from January 1st, 2021 – 5%, from January

1st, 2023 – 10%, from January 1st, 2025 – 20%) (Act of 11 January, 2018, art. 36, 68). However, the introduction of these obligations should not result in unreasonable expenditure. For this reason, LGUs should prepare a cost-benefit analysis related to the use of zero-emission buses every three years. If its results indicate a lack of benefits, LGs may not fulfill the obligation to achieve an appropriate level of their participation.

The Act on electromobility also creates development opportunities for entrepreneurs and new business models; not only for producers of vehicles powered by electricity or alternative fuels, but also for companies organizing rental of transport means, Polish research centers, electronics and equipment manufacturers. The adopted legislative solutions also result in new obligations for DSOs, which may involve an increase in outlays for connecting the charging stations (Drożdż, 2018b, p. 299).

2. Organization and revenues of the Low-Carbon Transport Fund

On 28th July, 2018, the amended Act on biocomponents and liquid biofuels entered into force. The essence of the amendment consists in the introduction of LTF, from which the projects listed include in the Electromobility Development Plan in Poland and the Electromobility Act. Support included both innovative solutions related to electric transport, as well as those based on alternative fuels, including compressed natural gas (CNG), liquefied natural gas (LNG) or biofuels. The idea behind the target fund – LTF is to eliminate the limitations associated with low interest in existing support instruments.

The LTF disposer is the minister responsible for energy, whose main task is to approve projects for support. The management of LTF was entrusted to the National Fund for Environmental Protection and Water Management (NFEPWM), which will conduct proceedings in the selection of projects for support. These tasks are supplemented by Bank Gospodarstwa Krajowego, which as part of banking services runs a bank account of LTF, confirms the balance of funds and deposits of LTF, as well as provides consultancy and advisory services on financial matters. The basic division of responsibilities of the trustee and manager is presented in table 2.

Table 2. Obligations of the disposer and manager

Disposer	Managing
Minister responsible for energy	NFEPWM
<ul style="list-style-type: none"> – supervision over the performance of tasks by NFEPWM, – drawing up LTF’s annual financial plan, – approval of the report submitted by NFEPWM on the implementation of the annual LTF financial plan, – indicating the project selection mode for support, – written approval of projects for support, – providing information and promotional activities. 	<ul style="list-style-type: none"> – carrying out project selection proceedings for support, – recommending the project manager for support, – concluding contracts for support and exercising rights and obligations under these agreements, – transferring free LTF funds to the Minister of Finance on behalf of the trustee, – making payments of support and monitoring and controlling the manner of its use, – preparing and submitting to the holder of the project the LTF annual financial plan and reports on its implementation, – providing information and promotional activities.

Source: own elaboration based on the Act of 6 June (2018) art. 28za, 28zb.

The specification of the rules for cooperation between the manager and the bank takes place at the level of the agreements between these entities. Indication in the Act on biocomponents of the mentioned areas is justified by the necessity to divide not only the competences of the entities, but above all the responsibility for the actions taken. The Act on biocomponents foresees that LTF may be supplied from several sources. The LTF’s revenues should be considered (Act of 6 June, 2018, art. 28zd):

- targeted subsidies from the state budget in the amount of up to 1.5% of inflows from excise tax on motor fuels planned in the previous financial year,
- interest on free LTF funds transferred to management of the finance minister,
- funds transferred by the transmission system operator in the amount of 0.1% of the justified return on capital engaged in the activity performed in the scope of electricity transmission,
- receipts from substitute fees (paid by the entity implementing the National Indicative Target),
- proceeds amounting to 15% of the broadcasting fee added to motor gasolines and diesel oil amounting to PLN 0.08 per liter of fuel (approximately EUR 20 per 1,000 liters) (the fee applies from January 1st, 2019).

The amendment to the Act on biocomponents assumes the introduction of the broadcasting fee. Revenues will be allocated to LTF (15%) – to support the development of alternative fuels market in transport and NFEPWM (85%) – to support projects related to reducing or avoiding harmful emissions of gaseous, solid or liquid substances that cause

air pollution (The Chancellery of the Prime Minister, 2018). According to the presented proposal, the obligation to pay the broadcasting fee is imposed on producers of motor fuels (motor gasolines and diesel fuels), importers of motor fuels and entities importing fuels from other EU countries.

3. Low-emission Transport Fund – the scope and forms of financing projects in the field of electromobility

Thanks to the amendment of the Act on biocomponents, a catalog of activities for which financial resources from LTF may be allocated has been extended. Also included are activities related to low- and zero-emission transport, i.e. outside biofuels, other alternative fuels. In contrast to the previous “Multiannual program for the promotion of biofuels or other renewable fuels for 2008–2014”, the accumulated funds will not have to be used within one financial year. In Tab. 3 the activities related to the use of electricity in transport, for which LTF funds can be allocated together with the type of beneficiary assigned to them, have been presented.

Table 3. Types of activities related to the use of electricity in transport financed from the resources of the Low-Carbon Transport Fund along with the type of beneficiary assigned to them

Operation (use of electricity in transport)	Type of beneficiary
support for the construction or extension of EV's infrastructure for charging	entrepreneurs
support for manufacturers of means of transport using electric energy for the drive and entrepreneurs conducting activity in the field of subassembly production for such means of transport	entrepreneurs
support for public mass transport operating in particular in urban agglomerations, health resorts, in areas on which forms of nature protection using electricity have been established	<ul style="list-style-type: none"> – entrepreneurs providing public mass transport services on the basis of a contract – self-governments of communes, – country self-governments
co-financing of port fees charged for mooring at the quay or marina of vessels using electric energy for the drive	entities managing ports
support for research related to the use of electricity in transport or related new constructional solutions and operational implementation of the results of these tests	<ul style="list-style-type: none"> – scientific units, – scientific consortium

Operation (use of electricity in transport)	Type of beneficiary
support for educational programs promoting the use of electricity in transport	<ul style="list-style-type: none"> – entrepreneurs – chambers of commerce, – public benefit organizations, – employers' associations, – other associations, – agricultural advisory units
support for the purchase of new vehicles and vessels using electric energy to drive	<ul style="list-style-type: none"> – entrepreneurs, – LGUs
support for activities related to the analysis and testing of the electricity market used in transport	<ul style="list-style-type: none"> – entrepreneurs, – chambers of commerce, – public benefit organizations, – employers' associations, – other associations, – agricultural advisory units

Source: own elaboration based on the Act of 6 June (2018), art. 28ze, 1; 28zf.

Support for projects granted from LTF funds may take the form of subsidies or loans – with the possibility of partial redemption – and other repayable financial support (Act of 6 June, 2018, art. 28ze, 3). The selection of projects for support is carried out in competition or non-competitive mode. Indication of a particular form of support and mode belongs to the LTF dispatcher. The general criteria for project evaluation for support concern (Act of 6 June, 2018, art. 28zg, 4):

- the importance of the project for the needs of the development of the electricity market used in transport,
- adequacy and accuracy of the planned activities and methods of their implementation in relation to the objectives supported by LTF funds,
- assessing the amount of planned project implementation costs in relation to its material scope,
- the applicant's organizational capacity to implement the project and institutional preparation for its implementation.

The maximum support limit is 100% of costs eligible for support. The support is state aid. The detailed conditions for granting this aid or *de minimis* aid apply.

4. Assessment of the possible impact of the Low-Emission Transport Fund on the development of electromobility in Poland

Beneficiaries of financial support from LTF may carry out investment projects consisting of on the construction site and extension of the EV charging infrastructure. It is also visible promoting the implementation of low-carbon economic strategies in cities, which include references to ecological forms of mobility and intelligent energy networks (Pilecki, 2018, p. 214). In fact, it will contribute to increasing the availability of charging infrastructure,

and will also introduce new technological solutions related to the use of electricity in transport.

An important aspect of the development of eM, related to the synergy effect, is the possibility of introducing new business models based on alternative fuels and their infrastructure. Another benefit may also be the development of technologies enabling the integration of systems and markets for transmission system operators, DSOs and energy generators.

The scope of activities supported from the LTF funds also allows support for initiatives consisting in the construction and exploration of integrated energy pilot installations adapted to the selected business model. It is also possible to co-finance the modernization of energy infrastructure, which is characterized by high capital intensity and a long period of use.

The social effects, increasing social awareness and ensuring demand for transport services using electricity through the development of zero- and low-emission vehicle fleets and public transport are not without significance for the development of eM. These activities are aimed at reducing emissions, and consequently improving the quality of air and the health of people. The implementation of a low-emission economy in all sectors is the basis for building sustainable development and energy management (Pająk, 2013, p. 42). The best way to change awareness in this area can be considered education combined with launching pilot projects that prove that transport using electricity can function more efficiently than traditional.

Conclusions

The creation of LTF contributes to the implementation of the government's policy in the area of eM and the fight against air pollution caused by transport. The introduction of LTF will also help eliminate the limitations related to the low interest in the existing instruments to support initiatives using electricity in transport. The functioning of LTF is based on both, application of incentives and restrictions. In the first option, LTE funds are allocated to support the diversification in the transport structure (in terms of fuels), while on the other hand – LTF implement limits, such as the emission fees, added to gasolines and diesel oil engines (the introduction of which is associated with the increase in the prices of traditional fuels).

The impact of LTF on the development of eM in Poland concerns not only investments in EV charging infrastructure. Due to the extensive catalog of activities that can be supported, initiatives influencing eM include support for producers of means of transport, support for public mass transport, research support, and support for activities related to the analysis and testing of the electricity market. All these activities give the opportunity to develop business models between the entities involved. They also allow to increase social awareness, leading to the multifaceted development of eM.

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FUNDUSZ NISKOEMISYJNEGO TRANSPORTU JAKO ŹRÓDŁO FINANSOWANIA ROZWOJU ELEKTROMOBILNOŚCI W POLSCE

Słowa kluczowe: Fundusz Niskoemisyjnego Transportu, finansowanie elektromobilności, elektromobilność w Polsce, gospodarka niskoemisyjna, transport niskoemisyjny.

Streszczenie. Wprowadzona w Polsce ustawa o elektromobilności w zakresie swojej regulacji implementuje dyrektywę europejską dotyczącą rozwoju infrastruktury paliw alternatywnych, której celem jest zminimalizowanie zależności od ropy naftowej oraz zmniejszenie oddziaływania transportu na środowisko. Istotnym czynnikiem rozwoju elektromobilności w Polsce jest zwiększenie dostępności do infrastruktury ładowania. Celem publikacji jest analiza Funduszu Niskoemisyjnego Transportu pod względem możliwości finansowania rozwoju elektromobilności w Polsce. Artykuł składa się z czterech części poprzedzonych wprowadzeniem i zakończonych wnioskami. Zastosowane metody badawcze to: krytyczna analiza literatury przedmiotu (ujęcie teoretyczne zagadnień dotyczących, gospodarki niskoemisyjnej, elektromobilności oraz operatorów sieci dystrybucyjnej), analiza wtórna dokumentów (*desk research*) polegająca na prezentacji założeń ujętych w aktach prawnych i dokumentach programowych oraz metoda wnioskowania logicznego przyczyniająca się do przedstawienia wniosków i realizacji celu publikacji. Wnioski ujęte w końcowej części artykułu dotyczą identyfikacji płaszczyzn oddziaływania Funduszy Niskoemisyjnego Transportu w kontekście jego funkcjonowania jako instrumentu finansowego.

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