

Electro-mobility in Poland – from strategy building to practise

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Abstract *The article is aimed to show whether and how the legal provisions in Poland, issued in order to implement the directive 2014/94/EU of the European Parliament and of the Council dated 22 October 2014 on the deployment of alternative fuels infrastructure, do in fact help to introduce electro-mobility on a scale expected by the Polish government. Secondly, whether the strategic assumption of the lawmakers have a chance to be fulfilled in the years to come, being based on the governmental institutions, dedicated financial means and technical solutions in force.*

Points for practitioners: *This paper can give the practisers an inside how to formulate strategic goals in public policy documents, in order to enlarge the changes for the goals to be actually achieved.*

Key Words: *alternative fuels, zero-emission, strategy, electric vehicles*

Introduction

The Polish government has presented in 2016 some new strategical fields of general social and economic development, known as “Strategy for Responsible Development”. One of the pillars of this strategic document is the “Plan of Developing Electro-mobility in Poland. Energy for the Future”, introduced to the public in March 2017 (Council of Ministers 16.03.2017). It sets as a general goal of the policy, to implement the quota and infrastructure provided for by the Directive 2014/94/EU of the European Parliament and of the Council of 22 October 2014 on the deployment of alternative fuels infrastructure (OJ L 2014, 307). Another strategic document is the “National Framework Policy on Alternative Fuel Infrastructure” (29 March 2017, hereinafter “the Strategy”). The legal obligation entered by the Polish authorities was then yet to come, as it was introduced in March 2018 by the Act of 11 January 2018 on electro-mobility and alternative fuels (Dz. U. 2018, poz.317 as amended; hereinafter “Act on electro-mobility”). The implementation of this Act should have helped to achieve the goals of the EU directive. However, already in mid-2019 there is little chance that it will become a success, as the initial goals of the first phase (ended by 31st December 2018) have not been reached. The delay will probably even grow.

It should also be noted that reaching the aims of the directive 2014/94/EU is not a goal for itself, it is rather one of the elements of a more general European Strategy for Low-Emission Mobility and the Paris Climate Agreement (United Nations 2015) providing changes which should slow down the climate changes.

The main question of the article is: was the goal of the Strategy established due to all requirements of efficient planning? Have the methods, chosen to establish the goal, been selected properly? Will the obligations and duties put on the public sector be enough to reach the estimated goal? How will this influence local governments and its services? Are the incentives for private sector (entrepreneurs and consumers) created efficiently?

1. Working on the Strategy and its goals

The full implementation of the Polish electro-mobility strategy presents as its aim to lessen air pollution and establish innovations in the field of transport, but seems not to be based on any empirical knowledge or assumptions, which would have been evaluated from an evidence based strategy. Its’ main goal is to cause that 1 million of transport means (“vehicles”) will be present on Polish roads until the end of 2024. However whether this target will be achieved is questionable, because it seems that this ambitious aim has not been calculated on proper evidence-based criteria. As a matter of fact even the definition of “vehicles” used in the documentation is not clear.

As mentioned above, the feature of specific (and not vague) goals is one of the conditions *sine qua non* of a properly build strategy. When analysing on the Polish strategy and the Act on electro-mobility the problems start

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already with the definition of “vehicles”. The legal provisions require for example that at least 30% of the public vehicles fleet should be electric in 2024. It is however not totally clear, whether it covers only cars and busses; or also trams, trolleys or even other vehicles (like: grass-mowers, sprinklers, snowblowers, garbage trucks etc.) as well? So it is important to determine the scope of electric vehicles, in the first place. The definition of such vehicles isn’t exact enough. Depending on the answer, to meet the target (of one million) will be more or less difficult.

The EC has started to promote electric (and other alternative fuel) vehicles already in 2009 (directive 2009/33/EC of the European Parliament and of the council of 23 April 2009 on the promotion of clean and energy-efficient road transport vehicles, OJ L 120, p.5). In 2010 it delivered the EC Communication “A European strategy for clean and energy efficient vehicles”, (COM(2010) 186 final) and in 2013 “Guidelines on financial incentives for clean and energy efficient vehicles” (Brussels 28.2.2013 SWD (2013) 27final) have been proposed to the Member States. All those binding and non-binding documents show at least the major solution that the Polish strategy could have included, but had been neglected, for several years. Those documents require the Member States to prepare their own strategies regarding legal instruments and financial incentives to introduce electro-mobility on their own territories, like the “national policy framework”. According to point 13 of 2014/94/EU directives’ invocation, the Member States may build their national frameworks on the basis of one or several planning documents and strategies, either separate or integrated, and there is no restriction as to the administrative level responsible for the support measures. The directive itself (point 16, 17) refers to instruments like “Connecting Europe”, “Horizon 2020”, which can serve as the examples how to structure the financing for the low-carbon transport initiatives and some innovations in this respect.

First Polish strategic documents stem however from not earlier as from 2016. Such late initiation of the works is the first reason why there is little chance to achieve the planned strategic goals for electro-mobility in Poland by 2024 (or even 2030 respectively). The actual steps in Polish strategy building and its implementation definitely should have been initiated earlier.

The governmental bodies in Poland started to work on the legislative package, which would promote and contribute to a significant increase of low-emission transport in Poland by publicising the National Policy Framework in March 2017², and the binding law³ in January 2018. Having in mind the timetable set out in directive 2014/194/UE, these actions have been commenced too late, as the European Parliament expected the framework policies to be ready by November 2016 and first reports on the assessment of the frameworks in all Member States not later than in November 2017⁴. For that time some coherence of national strategies at EU level has also been expected.

One of the topics which seem to be important, while implementing a strategy into practise is in the question whether the goals of the strategy are correctly calculated and described. It is well known that one of the features of proper planning is, that the goals should be i.a. relevant, measurable and time-bound⁵. They should however also be specific and achievable. The feature of “relevant” seems to be obvious in the context of the global desire to decrease CO₂ emissions. The Polish strategy does not reflect this problem, it points rather out as its goal one million low-emission “vehicles” by end of 2024 on Polish roads. However there is no exact legal definition what a “vehicle” actually is. For this reason it is impossible to determine when the goal will be reached and both goals (EU and Polish) are not comparable. By referring to a different measure, the national policy framework and the Act on electro-mobility cannot be even compared with the benchmarking EU document. Additionally, the national policy framework contains a statement that the number of one million vehicles is only an indication of the limit which the public authorities, entrepreneurs and citizens should only strive to achieve.(so it is not firmly defined).

The only requirement that has been fulfilled is that of a time-bound goal. The Act on Electro-mobility sets deadlines of 31.12.2019 and 1.1.2025, as the end of two stages of electro-mobility implementation. A separate timetable has been introduced for municipalities in respect of the number of public transport means driven by alternative fuels.

² Szafrański, Adam 2017, Prawne uwarunkowania realizacji Strategii na Rzecz Odpowiedzialnego Rozwoju w obszarze energetyki ze szczególnym uwzględnieniem elektromobilności, iKAR 6: p.12; Krajowe ramy polityki rozwoju infrastruktury paliw alternatywnych, Warszawa, 29.03.2017

³ Ustawa z dnia 11. 01. 2018 o elektromobilności i paliwach alternatywnych, (Dz. U 2018.317 as amended)

⁴ Rabiega Arnold 2018, Instrumenty prawne stymulujące rozwój elektromobilności i infrastruktury paliw alternatywnych, iKAR 7, p.104.

⁵ According to the SMART concept, all strategic goals should be specific, measurable, achievable, relevant, time-bound.

In order to measure whether the goals are achievable, a proper previous analysis of needs and possibilities is required. Such an analysis has been presented (at a minimalistic scope) by the European Commission, but not by the Polish legislator. Above that, the EC analysis refers to a significantly different criterion, being the level CO₂ emissions and not the amount of alternative fuel vehicles. This brings us to a conclusion that the Polish strategic document does not correspond with EU documentation which it should implement. The Member States are requested to put the goals more precise and turn those into some numbers in the national law level, remembering that they should not consist of wishful thinking only.

Above that, an ultra-optimistic attitude can be verified when analysing the Polish act on Electro-mobility. As mentioned, the Strategy provides for a goal of 1 million of electric vehicles. But when reading more carefully, the goal is described as “vehicles on alternatives fuels”, which include also gas-driven vehicles. So, again no measurable goal has been provided. Above that no exact number has been mentioned at all in the Act on Electro-mobility, so it is not a number which would be legally binding to anyone – any public authority nor the car producers, not mentioning the car owners, of course. From the strategy building point of view, such a not binding indication is a mistake. If there is no properly measured target in a legal act, any number or amount to be achieved has a purely informative character.

One could try to argue that the bundle of financial and legal instruments, provided for in Act on Electromobility are more important than a fixed number of vehicles to be achieved, but from the strategy building perspective no specified goal is an unforgivable mistake. On the other hand, even if the 1.000.000 of vehicles would be binding, it seems rather an unreachable target. At the end of 2016 there were hardly 2.000.000 electric vehicles worldwide⁶. In Poland the total of all (private and public) vehicles (car, trucks, busses, motorcycles etc., driven by any kind of fuel) summed up (mid 2017) by approximately 28,7 mln⁷, and the number of electric cars ranged between 3.000 and 4.000. By giving the market players and authorities only seven years of time to achieve the prospected goal of one million low-emission vehicles, the probability of a success reduces automatically. It is also the nominal amount of vehicles expected to be present on Polish roads that makes the fulfilling of the strategy goals a demanding task.

Among the targets put in the Strategy and the Act on electro-mobility some obligations have been laid down on the central administration authorities, local communities and providers of public transport (mainly companies wholly owned by the municipalities). The Act on Electro-mobility obliges the central administration authorities and all local communities with more than 50.000 inhabitants to have at least 10% of its car-fleet by the end of 2019 as electric vehicles and 20% by 1.1.2023 (central administration) and 20% by 1.1.2025 (local communities). This limit is unachievable for many reasons. This would mean that during the years 2018-2019 these 10% of the car-fleet would need to be changed. In 2018 there were hardly any financial means reserved and no procurement procedures planned in advance, for the purposes of purchasing new vehicles, and the year 2019 will most probably bring the same problems. Also no estimations of the central government have been published disclosing how many cars (in nominal numbers) these 10% of car fleet would demand. Especially, taking under consideration that the nominal number of these 10% in Poland is by far a bigger number than in smaller (by inhabitants and car number) countries like Sweden, Finland or Greece. Therefore it will need more time to produce an appropriate number of vehicles, let stay to buy them. The public transport companies should for their turn change 30% of their busses (trams are not mentioned in the legal act at all) into zero-emission vehicles.

On the other hand the Act on Electro-mobility obliges the local self-governments to change their public transport means (e.g. busses) to “zero-emission” version, by at least 10 % until the end of 2019; and in 30% or 50% (respectively) by the end of 2025⁸. Quite a few elements became major obstacles to achieve the level demanded. Firstly, such products are clearly expensive ones, because of the costs bared by the producer (providing the needed know-how, technology, licences, educated employees). The producers may also not be ready yet to propose zero-emission vehicles, which would fit the cities’ technical needs. Moreover the time between ordering and receiving e.g. new busses may last more than until the end of 2019, even if those vehicles have been ordered directly after the Act on Electro-mobility came into force. Secondly, the municipalities may not have sufficient financial sources in their budgets to buy 10% of its fleet practically at once, if they have not undertaken any

⁶ <https://www.theguardian.com/environment/2016/oct/13/electric-car-sales-set-to-pass-2m-landmark-globally-by-end-of-2016>.(access 20.03.2019).

⁷<https://www.prawodrogowe.pl/informacje/statystyka/liczba-pojazdow-zarejestrowanych-w-polsce-wg-danych-cepik-stan-n> (access 30.03.2019).

⁸ Rabiega, Arnold 2018, Instrumenty prawne stymulujące rozwój elektromobilności i infrastruktury paliw alternatywnych, iKAR 7, p. 105

previous purchases. Third argument refers to the investments in the fleet previously made by cities. Many of them have made purchases and bought a notable number of new busses in the period of last fourteen-fifteen years, as soon as receiving regional aid became possible. Many cities used especially the opportunities of the foregone EU financial period 2007-2013 and purchased a significant number of new public transport means. The relatively new fleet (even if driven by traditional fuel) cannot be considered as superfluous. The question arises what should happen to newly bought busses or cars, which could be in use for many years more, if not the new goals of electro-mobility strategy? They cannot simply be put away, as the authorities are also bound by the regulations on cost-effectiveness of public spending, which prohibits and sanctions different forms of mismanagement. Properly prepared long-term strategies should take that fact under consideration. As a matter of fact, the communities have the obligation to prepare (and submit to the Minister of Energy), an report on social and economic results of implementing the electro-mobility plan. If such a report is negative and shows economic disadvantages the communities may conclude that the implementation of electro-mobility is not suitable or even legal.

Another goal mentioned in the Act on Electro-mobility is the installation of a desired number of charging points, appropriate for the planned number of vehicles. The deadline for the first phase of introducing publicly accessible: 6000 charging points and 400 fast-charging points has been put by the end of 2020. This date does not correspond with the first phase of the Strategy.

The EC recommends to have one charging point per 10 electric vehicles⁹. This would mean that approximately 100.000 charging points would be needed through the country, the majority of which may remain privately used. However, the real number of vehicles in 2020 can only be estimated at the moment, so automatically a problem arises in respect of evaluation of the prospected charging points amount. Additionally no estimations have been made by the strategy-builders, how many charging points will be delivered on private premises (apartments houses, hotels, housing-estates etc). So it's practically impossible to adjust the number of charging points to the actual amount of electric vehicles, because the latter will not be known upfront. For this reason it is not possible to treat the goal of establishing the infrastructure as measurable. Nevertheless the national framework policy includes a statement that (only) 75.000 charging points (in total) are required. This is evidently not following the EC recommendations , regarding the amount of charging points per vehicle. As the authorities have no influence on how many privately operated re-charging points will be built on private premises, there is no evidence that the planned publicly accessible 6000 charging points until 2020 will be a satisfactory amount.

The Act on electro-mobility foresees, that at the first stage, privately owned, but publicly accessible fast charging points will be established; and later on i.e. after 2020 (if needed) some publicly owned. Such a strategy seems not only be based against the evidence of profitability, but is against any common sense. Due to the rules of the competitive market as long as the number of electric vehicles (on the roads) remains low, the economic calculation will show that hardly any private (but accessible for the public) charging points will be established, because of the unprofitability of such an undertaking. The invested amounts of money, confronted with the number of potential users show that there might even occur a loss on maintaining such charging points. According to the national framework of infrastructure a fixed number of charging point is expected to be built along the core TEN-T routes, especially on the premises administrated by GDDKiA (General Directorate on National Roads and Highways). The Strategy focuses its actions on optimal allocation of the charging points, in order to cover as much as possible of the TEN-T core network, especially at the bottle necks and critical points places where lack of sufficient amounts charging points would lessen the functionality of the electric vehicles. In practice the emphasis is laid only on the biggest cities and the transport corridors of TEN-T. At the moment of editing the Strategy for Electro-mobility some of northern (especially the coast-region) and eastern part of Poland could not have been reached by electric vehicles because of no charging points at those locations¹⁰. The locations of the charging point should allow to make a connection between all the major Poland's cities, notwithstanding its profitability. Having in mind that the first report on the state of matters should be prepared by November 2019, and if this will be the time of making any potential adjustments, there will be not much time left to make the public investments, in order to meet the target of 75.000 charging points in Poland by 2025. Moreover, art. 32 of the Act on electro-mobility does not put any legal duties on the authorities (like GDDKiA) or the companies responsible for maintenance of travellers-service-point. Their role ends up with the preparation of a plan of locations, but does not go further on to its implementation. Those authorities are obligated to appoint an operator of the infrastructure, who might as well be anyone from the private sector.

⁹ Directive 2014/94/EU point (23)

¹⁰ Krajowe ramy....., p. 26

As mentioned the number of fast-charging points to be established by 2020, has been approved at the level of 400. Those charging points are planned in cities having more than 100.000 inhabitants, which in fact refers to a significant number of Polish towns (approx.20%). The chances to achieve this goal are rather weak, although the number of the publicly accessible charging points has indeed increased significantly in 2018. Nevertheless in 2Q 2018 there were only 142 charging points present; (and just 12 electric cars at each 10.000 traditional fuel cars)¹¹. These statistics bring to a conclusion that public and private charging points should be established at the same time, parallel to extensive incentives for buying electric cars (vehicles). This idea of public entities stepping in only if the private sector fails, seems not to be a good solution in order to meet the strategic goals.

2. Incentives for the public investors and entrepreneurs

With so immense number of desired investments in vehicles and charging points infrastructure, it seems quite obvious that the public authorities need to implement solutions that encourage different kinds of entrepreneurs (car and bus producers, charging station providers, energy suppliers, engine developers, constructors etc.) to invest intensively in innovative solutions. Though numerous legal and financial instruments have been introduced in order to maximise the fast implementation of the targets on electro-mobility, the methods described so far are mainly designed for the establishers of the infrastructure and car producers.

One of the main incentives is the resignation of the obligation to receive a building permit prior to the installation of the charging station¹². Any construction of larger scale to be built requires in Poland a permit in the form of an administrative decision. However, charging stations to be placed on privately-owned land, do not require such a document. The situation regarding the establishment of the charging stations on all the other estates, should have been clarified and exempted either in order to achieve the desired number of charging points¹³. This accelerates the construction works by several weeks, regardless whether the planned station will be a publicly available one or not. Another important simplification of the procedures of establishing and operating a charging point is, that those operators do not need to apply for a concession on energy supply, as all the other suppliers of electric energy do. Broad exemptions and simplification for starting a business are a major argument for the investors, who save time and money in their efforts to meet the planned level.

However, when the investor starts negotiations with the public landowner (like along the TEN-T net), the time needed to start operating a charging point will take much longer. As the administrative procedures regarding building permits must be commenced, the investment will definitely be postponed for at least several weeks (if not months). So it's practically impossible to adjust the number of charging points to the actual amount of electric vehicles, because the latter will never be known upfront, and there will always be gap between the two amounts¹⁴. For this reason it is not possible to treat the goal of establishing appropriate infrastructure as measurable. On the other hand those formal facilitations will not recompense the quite high financial costs of each station.

Another objection towards the strategic goals disclosed in the national framework policy affect the technical requirements of the charging points. Main concerns must be raised towards the lacking resolution of the Council of Ministers on the technical requirements of charging stations and points of loading, almost a year after the Act on electro-mobility came into force, and almost two years after the strategic document on electro-mobility has been disclosed. In other words the preparation period of 2016-2018 (after the Strategy and the Act on electro-mobility have been published) has passed unproductively, before the potential operators found out what kind of technologies and technical requirement are demanded, in order to start their investments. Instead of being ready for installations, they need to negotiate the conditions of contracts for delivering (or design themselves) the

¹¹ As an example, the first charging point of high power has started to operate in November 2018 in Jaworzno, as a charging point solely for the purposes of the city's transport company (in other words it is not publicly accessible, and does not count within the 400 stations. <https://niezalezna.pl/245629-ruszyla-pierwsza-w-polsce-stacja-ladowania-i-szybkich-wymiany-baterii>). (access 15.03.2019)

¹² Rabiega, Arnold 2018, Instrumenty prawne stymulujące rozwój elektromobilności i infrastruktury paliw alternatywnych, iKAR 7, p.109.

¹³ Szafrański, Adam 2017, Prawne uwarunkowania realizacji Strategii na Rzecz Odpowiedzialnego Rozwoju w obszarze energetyki ze szczególnym uwzględnieniem elektromobilności, iKAR 6, p.13.

¹⁴ There is a formal record in which all operating charging points should be registered. The operators are legally bound to apply for registration within 7 days after a charging point started operating. The application form has been published in a resolution of the Minister of Energy, Dz. U 2018. 2514) and came into force 1st January 2019.

charging stations just a few month before the first phase ends. This will definitely postpone reaching the strategic goal of 6000 publicly accessible charging points by 2020. It's not for the first time in Polish practice on strategy implementation, that late enactments of legal provisions occurred an obstacle in reaching the target.

When implementing the ambitious plan of introducing electro-mobility on a large scale, severe amounts of public financial means are necessary. The Strategy however does not provide for public sources, enough to implement the strategy goals. It anticipates that most of the expenses will be made by private sector, or the self-governmental local authorities. By giving an extraordinary short period of time to make the investments, the authors of the strategy seem not to have taken into account the budget proceedings and limit of public debt and public expences. Though the priority given to private investments is connected with the rules regulating the local municipal budget and expenses. The local budgets are yearly plans of income and expenses, accompanied by a multiannual financial prognosis, (which each municipality should have). The financial prognosis encompasses the years 2019-22. Earlier one could not include any obligatory public investments, because it has been simply issued prior to the Act on electro-mobility.

Also the financial support and state aid schemes seem inadequate to the strategy goals. In fact any subventions for self-governmental units have been postponed until 2019 and later on, so no orders of zero-emission busses and car fleet could have been made before, forcing the cities to "last minute" purchases. The 2014/94/EU directive declares that the fulfilment of its regulations shouldn't be connected with extra costs for the municipalities, but in practise they will be forced to huge expenses. Meanwhile some of the obligations under the Act on Electro-mobility are imposed specifically on municipalities and differ depending on their size (number of inhabitants).

The Act on electro-mobility (in art. 61) obliges the local governments to present – by January 15th, 2020 - a report on the number of publicly accessible charging points on the territory of each of them, and if the results of such a report will not be satisfactory, then the public sector will be forced to make its own investments. Having in mind that the process of such an investment lasts at least a couple of months, because of administrative procedures (eg. concerning the building permit) - the probability that the prospected amount of 6000 charging points by the end of 2020 is near to none. The fact that a municipal resolution with an investment plan must be ready not later than by March 15th, 2020 does not accelerate the process. In order to build the stations separate procurement procedure must be announced, and later on a procurement procedure to choose an operator for those stations.

One should also mention, that some companies (partially) owned by the State Treasury make investments that are considered as private investments. One of the biggest Polish fuel sellers (Orlen S.A.) plans to establish 50 charging points by the end of 2019; an electric energy supplier (Energa S.A.) - another 54¹⁵. This is still not sufficient to meet the strategic benchmark. Above that, there is no information on how many of those stations will be publicly accessible.

One of the incentives to establish the infrastructure is the potential exemption from real estate tax for the charging stations. The parliament didn't change the legal act on real estate tax generally, so discrepancies in different regions may occur in this respect, as the real estate tax is an income of the local budgets. The decision on exempting from tax has been left for the municipalities. Each community may issue its own resolution, which will lead to a diversified legal status of single charging points. That again, may lead to an allocation of charging points, not in line with the needs of travellers, but with the commercial calculation of the entrepreneur. In order to treat all of the entrepreneurs equally the exemption should have been implemented by changing the legal act on local taxes.

Many of the planned incentives constitute state aid, and for this reason need to be approved, before its delivery. Financing instruments like premiums, subventions or tax allowances for entrepreneurs that have selective and anti-competitive character need prior EC acceptance. The Authors of the Strategy formally have mentioned this in the wording of the document, but the time table of implementing the stages of electro-mobility seems to have overlooked it. This refers to subventions provided to the operator of charging points and for providers of public transport services.

¹⁵ <https://www.orlen.pl/PL/BiuroPrasowe/Strony/PKN-ORLEN-rusza-z-budow%C4%85--w%C5%82asnej-sieci-%C5%82adowarek-elektrycznych-w-Polsce.aspx>; <https://media.energa.pl/pr/299156/energa-kolejny-punkt-ladowania-samochodow-elektrycznych-w-trojmiescie> (access 30.03.2019)

One of the proposals are financial incentives, for the consumers and entrepreneurs, which should stem from the Fund for Low-Emission Transport (hereinafter Fund), established in July 2018¹⁶. Subventions and premiums proposed by the government derive also from EU funds¹⁷ and programs (like Horizon 2020)¹⁸. Fund for Low Emission Transport is authorised to spend money on many low-emission projects. Its financial sources do not however come directly from the central budget, but will be transferred from excise tax (1,5% of excise on fuel), and special duties imposed on the importers and sellers of traditional fuel. The latter are obliged to pay 80 PLN at each 1000 litres of fuel. It is envisaged to receive approx. 5 bln PLN from those duties as income to the Fund until 2027.

The timetable of implementation of the numerous instruments, especially the financial means available, lessens in itself the chances of full implementation of the Strategy goals. As an example, it was planned to start the Funds' actions in 1Q 2019, but the regulation of Minister of Energy, displaying the conditions of granting subventions has not yet been issued (as of May 2019). Also no estimations nor a project of the subventions needed and sources to be gathered have been disclosed. It is therefore not possible to evaluate whether the calculations are realistic or not. The resources do not guarantee that the amounts will be sufficient to co-finance investment which would lead to the level provided for in the Strategy. Another important point to be noted is that when time will pass by, the income from the duties and taxes to the Low-Emission Transport Fund will get lower, because the volume of sold fuels will get less and less.

The financial sources gathered by the Fund will be awarded in form of subventions, low-interest loans or co-finance of investments in infrastructure, purchase of low-emission vehicles and promotion of the low-emission policy among the citizens. Some investments may be used by the innovative partnership (as understood by the public procurement law). This would allow to join forces by the public and private sector.

Some support for electric vehicles purchases may derive from the public procurement procedures, which generally help to introduce smart and sustainable economy. According to the provisions of the Polish public procurement law¹⁹, the so called "green procurements clauses", may give preferences to those bids that include proposals of low-emission solutions. In many cases the environmental clauses may refer to zero-emission transport means as an compulsory element of the bid. The contracting authority has the possibility to demand as one the procurement conditions, and as one of the procurement award criteria - the use of electric vehicles. The more often these instruments will be used by public contractors, the sooner the private sector will be forced to invest in low-emission vehicles.

3. Incentives for purchasers of electric cars

Another topic on the implementation of the goals specified in the Strategy and the Act are the incentives for the purchasers (entrepreneurs and consumers) of electric vehicles. The financial incentives seem to have the biggest influence of the purchasers decisions. The cost of an electric vehicle is still much higher than the average price of a middle-sized car on traditional fuel. One of the obstacles for individual users remains the price of an electric engine, which constitutes even up to the half of the cars' price. For nearly 60% of Polish citizens the price of the electric car remains a burden for buying it. As the EC allowed²⁰ the Member States to eliminate the excise tax on low emission cars, this will reduce the price of electric vehicles. It is worth mentioning, however that the excise tax was only 3,1 % for electric cars (18,6% for hybrid), so the price decrease because of the tax exemption will not be very noticeable. Moreover, only the purchase of fully electric and new cars is exempted from excise tax, whereas purchase of hybrid cars, only until 1.01. 2021. Public premiums to a purchase price of eg. 20% would be more helpful, than the excise exemptions. Unfortunately such premiums have not been introduced yet.

¹⁶ Ustawa z dnia 6.06.2018 o zmianie ustawy o biokomponentach i biopaliwach ciekłych oraz niektórych innych ustaw (Dz.U 2018.1356 as amended).

¹⁷ One of the Polish Operating Programs: "Infrastructure and Environment", VIth Priority (Public transport) provides for 1,3 bln PLN European co-finance for low-emission transport means. This will give approx. 506 electric busses, which is by far not enough to meet the level of 10% of vehicles to be replaced by the end of 2019.

¹⁸ Directive 2014/94/EU point (17)

¹⁹ Ustawa z dnia 29.01.2004 prawo zamówień publicznych (public procurement law)(Dz. U. 2018. 1986 as amended)

²⁰ Letter from the EC ,18.12.2018, COMP/H2/KP/jj(2018)196711 https://www.podatki.gov.pl/akcyza/wyjasnienia_zwolnienie_od_podatku_akcyzowego_pojazdow_elektrycznych_hybrydowych_i_z_napedem_wodorowym/ (access 30.03.2019).

The incentives for purchasers of electric vehicles have been postponed in time, until the supply is sufficiently developed and the network of charging points won't be ready. However it seems that both actions (infrastructure and price incentives) should have been introduced parallel to each other. The number of charging points will not grow and operating them will not become profitable as long as the amount of electric vehicles remains low. The squaring the circle can be avoided only by simultaneous actions on all sides. It seems to be more logical to intensify both actions at the same time, even if the scale of the public investments would be lower than initially intended.

An indirect incentive for the (potential) purchasers of electric vehicles is reflected in the right of communities to introduce low-emission transport zones, which no traditional fuel cars are allowed to enter. Such zones may be set-up by resolutions of the cities' council. It allows to limit entrance of vehicles and to promote solutions that are environment friendly. The Act on Electro-mobility for the first time gave the Polish agglomerations power to create such zones. Though some cities have initiated steps in this respects, their first experience are rather negative. The first town which in fact issued such a resolution (Kraków) has been criticised for the resolution in detail, as the conditions of entering the zone were considered discriminatory. This makes clear that all interested parties require further education on the forms and aims of restrictions in traffic in city centres. Promotion of the low-emission policy and the cities' resolutions need social acceptance. In order to gain acceptance the local authorities should inform and educate the inhabitants about the profits of low-emission zones and strive to implement rules which encourage to buy electric cars, not to discriminate owners of traditional fuel vehicles. Another incentive for the purchasers might be the possibility to park without being charged on public parking places, or at least in the zero-emission city zones. The same counts for the idea to allow electric cars use the bus-lines in city centres, and save time especially on every-day routes.

On the other hand some demotivating legal solutions are planned, like imposing an additional duty to be paid when a car on tradition fuel is registered for the first time. This proposal has been eliminated during the parliamentary works on the Act on electro-mobility, but re-introduced to it in July 2018 when first amendments to the Act have been passed²¹.

4. Methodology

The methodology used in this articles is mainly based on the dogmatic analysis of the strategic documents and legal acts. Both instruments implemented in Poland have been analysed from the perspective of criteria on S-M-A-R-T description and management of goals. The analysis of expected figures to be achieved (of electric vehicles, charging points, busses etc.), the time table and financial sources being at the investors disposal brought showed that the Polish strategy on electro-mobility is far from realistic.

5. Conclusions

Any strategy is doomed to failure if its goals are not meeting common sense and/or the criteria of a well-defined target. Unfortunately the goals set for in the Polish Strategy for Electro-mobility and the Act on Electro-mobility and alternative fuels do not meet the criteria of well-designed and evidence-based documents. No strategic document nor any legal act do creates the future market of electric vehicles, on their own²². Legal and financial incentives for car users, car producers, infrastructure constructors, as well as for communities and public authorities are necessary. To what extent the production sector will create supply and how quick the producers will be ready to respond to the market demand is a question that no strategy or legal act can answer. Therefore the short time table, the amount of state aid and the public investment are not proportional to the targets. In the end it will be the market mechanism which will show whether the infrastructure, the technical and financial instruments are sufficient to move Polish transport sector into the electric. Next to all the other instruments for developing the electro-mobility the educative and promotional events are desirable. Informing the consumers on the possibilities to use new kind of fuel, instructions how to use them or where to find the charging points are at least as helpful as all the privileges given to end-users.

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²¹ Rabiega, Arnold 2018, Instrumenty prawne stymulujące rozwój elektromobilności i infrastruktury paliw alternatywnych, iKAR 7, p.112.

²² Szafrański, Adam 2017, Prawne uwarunkowania realizacji Strategii na Rzecz Odpowiedzialnego Rozwoju w obszarze energetyki ze szczególnym uwzględnieniem elektromobilności, iKAR 6, p.12.

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