



E-mobility in the Energy Community Contracting Parties
Survey on the legal and regulatory framework and role of regulators

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I. INTRODUCTION

1. About ECRB

The Energy Community Regulatory Board (ECRB) operates based on the Treaty establishing the Energy Community (hereinafter ‘the Treaty’). As an institution of the Energy Community¹ ECRB advises the Energy Community Ministerial Council and Permanent High Level Group on details of statutory, technical and regulatory rules and makes recommendations in the case of cross-border disputes between regulators.

ECRB is the independent regional voice of energy regulators in the Energy Community. ECRB’s mission builds on three pillars: providing coordinated regulatory positions to energy policy debates, harmonizing regulatory rules across borders and sharing regulatory knowledge and experience.

2. Scope of the report

The European Commission’s Strategy for Low- Emission Mobility from 2016² recognized important role of e-mobility in the process of decarbonisation of the transport sector in respect to CO₂ and noise reduction in urban and other densely populated areas. E-mobility is an important contributor to meeting the Unions climate and energy targets. In addition to the contribution of e- mobility on reducing emissions and shifting to circular economies, e-mobility may also provide flexibility services to the energy system, by implementation and deployment of new technologies such as smart charging and vehicle-to-grid (‘V2G’) technology. The Clean Energy Package³ supporting the process of decarbonisation sets out market rules that should contribute to integration of electric vehicles and publicly accessible and private recharging points in the electricity grids.

Although a majority of e-mobility related issues has already been regulated in the European Union by related directives and regulations, still there is possibility for member states to introduce different national market models and describe the role of electric vehicle (‘EV’) users, service providers, charging point operators, national regulators and other market participants.

¹www.energy-community.org.

² Communication from the Commission to the European Parliament, the Council, the European economic and social committee and the Committee of the regions, A European Strategy for Low- Emission mobility (<https://ec.europa.eu/transparency/regdoc/rep/1/2016/EN/1-2016-501-EN-F1-1.PDF>)

³ https://ec.europa.eu/energy/topics/energy-strategy/clean-energy-all-europeans_en.

The purpose of this survey is to assess the legal, regulatory and technical aspects of e-mobility in relation to the existing legal and regulatory framework, role of the national regulators regarding licensing, connection costs and tariff design as well as tendering procedure for selection of the operator of recharging points in the Energy Community Contracting Parties ('CPs'). The survey shall also explain technical aspects of e-mobility such as current introduction of electric vehicles, publicly accessible recharging infrastructure, state support mechanisms, Vehicle to Grid Services and smart metering.

The report covers the Energy Community Contracting Parties: **Albania, Bosnia and Herzegovina, Georgia, Kosovo*,⁴ Moldova, Montenegro, North Macedonia, Serbia and Ukraine** as well as the Energy Community Participant country **Greece**.

3. Methodology

Data and analysis contained in the present report are based on information and data provided by the regulatory authorities of the analysed markets. For this purpose, a questionnaire was prepared and circulated to the regulators.

⁴ Throughout this document, this designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Advisory Opinion on the Kosovo* declaration of independence.

II. ASSESSMENT

1. Definition of e-mobility related issues in legislation

Popularisation and expansion of electric vehicles and recharging infrastructure depends mostly on stable legal framework on e-mobility related issues. On the EU level, the most important issues on e-mobility are defined in several strategic documents and directives⁵. Contrary to EU countries, the answers provided by all CPs show that in the majority of them, there is a lack of comprehensive legislation, although the most of them reported that some of e-mobility issues are regulated in national legislation.

Only in three CPs- Ukraine, Georgia and Serbia, as well as in Greece, some of e-mobility related issues are defined in primary legislation. In Greece, also a definition of the Charging Point Operator has been introduced. In addition to this, the Greek law foresees the adoption of a Joint Ministerial Decision following an opinion of the NRA to clarify the role and obligations of operators of recharging points.

In Moldova, special law are in preparation phase and should define several very important e-mobility issues.

In North Macedonia, some connecting issues regarding electric cars and recharging points are stipulated in distribution grid code.

In four CPs, there is a complete lack of any legal provisions regarding this issue.

2. National action plan on introduction of recharging infrastructure for electric vehicles

Existence of a national action plan on introduction of electric vehicles and recharging infrastructure may sent a very good signal for potential investors. Therefore, it is very important for national governments to prepare and adopt detailed and realistic national action plans on this issue. Although EU legislation on e-mobility is still not adapted in the Energy Community and therefore not legally binding for the CPs, there is such a plan in North Macedonia.

⁵ Commission Communication Paper-European Strategy for Low-Emission Mobility from 20 July 2016, European alternative fuels strategies, Europe on the move-An Agenda for socially fair transition toward clean, competitive and connected mobility for all, Europe on move-Sustainable Mobility for Europe safe, connected and clean, Directive EU 2019/944 of 5 June 2019 on common rules for the internal market for electricity and amending Directive 2012/27/EU, Directive EU 2014/94 of 22 October 2014 on deployment of alternative fuels infrastructure, Directive EU 2018/844 amending Directive on the energy performance of building and directive on energy efficiency, Directive EU 2018/2001 on promotion of the use of energy from renewable sources, Directive EU 2019/1161 amending directive on promotion of clean and energy-efficient road transport vehicles

In all other CPs, there is no approved national action plan on introduction of recharging infrastructure for electric vehicles.

In Greece, an integrated and comprehensive national action plan for the development of recharging infrastructure for the electric vehicles has not been finalized yet.

3. State support scheme for purchasing electric vehicles or construction of recharging infrastructure

Only in three CPs- Ukraine, Moldova and Serbia, some kind of support mechanism is in place, contrary to the EU countries, where a wide range of support schemes exists, from purchase subsidy for EV buyers to tax advantages of EV owners.

In Serbia, there is a purchase subsidy for EV buyers limited in total amount of money depending on the type of EV. In Moldova and Ukraine, tax advantages for EV owners are in use. Additionally, in Ukraine, a traffic related subsidy i.e. free parking, was introduced.

In 2020, the Greek Government implemented a complete electro-mobility support scheme. The scheme included both direct and indirect forms of support to promote the use of EV such as: development of free public parking spaces for EV, faster approval of licenses to the entities that manufacture EV and related goods, tax exemptions for companies that use EV, tax discounts for purchase, installment and operation of the publically accessible recharging pints, tax exememptions for EV buyers- natural persons, ecological bonus for electric vecihles which differs according to the type of buyers (natural persons, taxi drivers, legal entities) and is calculated as a rate of the retail price.

This analysis shows that, similar to the EU, the most common support scheme in the CPs is a purchase subsidy for EV buyers and tax advantage of EV owners.

It also shows that majority of CPs still hasn't intoduced any kind of support mechanism in order to facilitate expansion of electric cars and recharging infrastructure.

4. Competences of national regulatory authorities regarding e-mobility issues

In the process of facilitating the penetration of EV, significant roles and responsibilities are not only on policy makers but also on the national regulators. Having in mind that through installation and connection to the grid recharging infrastructure becomes part of electricity system and that electric cars may have significant impact to the grid, it is clear that some issues regarding e-mobility should be under regulator's control. More than that, as e-mobility is not only related to energy, but also to transportation, telecommunication, data security and other issues, the cooperation among different regulatory authorities and interdisciplinary attitude towards e-mobility is essential.

Some of the most important regulatory issues regarding the e- mobility are:

- setting connection costs for recharging infrastructure,
- licensing/registering charging points operators or service providers,
- setting special tariffs for electric vehicles users and
- preparing tender documentation for selection recharging point operator.

The majority of CP NRAs declared that regulator has none of these roles.

Only in two CPs, North Macedonia and Georgia, national regulatory authority is authorized to set connection costs for recharging infrastructure.

In Greece, the Ministry of Energy supervises the operation of the EV market as well as the relevant procedures which have to ensure free and equal access of all the participants.

5. Specific network tariffs for recharging electric vehicles

Charging of electric vehicles could cause grid congestions, especially in the cities with high density of recharging points, no matter whether they are publically accessible or house placed. In such cases, responsibility for congestion management should be on the distribution system operators ('DSO'), and a question arises on who should cover the costs necessary for distribution network development. On the other hand, different electricity tariffs for EV charging should stimulate electric cars' users to charge their vehicles in time when impact on the grid is minimal (i.e. during the night). Also, there are still customers who do not own electric vehicles, so socialization of the costs among all customers does not seem to be fair. Discussions around all these topics have not started in the CPs, due to the low level of development of e-mobility, however this is to be changed in the near future.

Currently, there is no specific network tariff for recharging EV in CPs and Greece.

In Greece, according to the applicable law, the pricing method, the relative tariffs and the EV charging service terms are freely formed, but must be made known to the users of the EV charging stations in advance.

6. Market model which allows DSO to own or operate the recharging stations

According to Directive (EU) 2019/944 on common rules for the internal market for electricity⁶, a DSO shall not own, develop, operate or manage recharging points for EV, except when a DSO owns private recharging for EV solely for its own use.

Derogation of this rule exist only in cases when other parties, following an open, transparent and non-discriminatory tendering procedure (that is subject to review and approval by the regulatory authority), had not been awarded the right to own, develop, operate or manage recharging for electric vehicles or could not deliver those services at reasonable cost and in a timely manner. In that case, a DSO may overtake all these roles but has to fulfill prescribed conditions, especially in the case it is a part of the vertically integrated company. In addition, the role of national regulatory authority in monitoring activities of DSOs and re- assessing the potential interests of other parties is crucial.

The aim of this analysis is to examine whether in CPs exist a special market model for e-mobility and whether a DSO may be owner or operator of recharging stations.

Only one CP- Bosnia and Herzegovina, reported that a DSO may be the owner or the operator of recharging stations. In all other CPs, there is no special market model for e-mobility in place and DSOs cannot be owners or operators of recharging stations. The same is in Greece, where DSOs cannot own, develop or operate EV recharging stations unless they are solely for their own private use.

7. Number of Electric Vehicles (Battery Electric Vehicles + Plug-in Hybrid Electric Vehicles) and recharging stations at the end of 2019

The number of EV and recharging points is rapidly increasing in many EU countries as a result of governments' commitments to encourage the e-mobility through supportive legal framework and implementation of purchase subsidy for EV buyers.

The number of EV is followed up by appropriate number of recharging points. The EU legal provisions define normal recharging point (less than or equal to 22 kW) and high power recharging point (more than 22 kW) as well as reaching or refueling point accessible to the public (number of them should be established taking into account the number of EV registered by the end of 2020 in each MS-1 recharging point on 10 cars), at public transport stations, port terminals, airports, railway stations, collective parking places in apartment blocks, office or business locations as well as recharging points that allow private users physical access with an authorization or subscription.

In CPs, the number of EV and recharging points vary. In the absence of comprehensive legislation on e-mobility, many issues depend on an ad hoc policy makers' decisions.

⁶ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019L0944&from=EN>

Tables below shows the number of EV and recharging points in CPs at the end of 2019. The information for Montenegro is not presented, due to the fact that regulatory authority didn't have official data on the matter. The problem with collection of official data existed in other CPs as well, therefore different web pages and sources were also used. It has to be highlighted though that some information may be incorrect or contradictory.

Table 1 Number of electric vehicles in 2019

Contracting Party or Participant	Number of EV
Albania	448
Bosnia and Herzegovina	14
Georgia	2,500
Greece	996
Kosovo*	508
Moldova	287
North Macedonia	143
Serbia	1,700
Ukraine	29,154

Table 2 Number of recharging points

Contracting Party or Participant	Number of recharging points
Bosnia and Herzegovina	90
Georgia	157
Greece	58
Kosovo*	3
Moldova	51
North Macedonia	46
Serbia	200
Ukraine	8,621

8. Building of publicly accessible recharging infrastructure for EV

Although there is a lack of legislation related to e-mobility issues in CPs, many institutions, organizations and companies are involved in construction and operation of recharging points: governments and local authorities, local electricity distribution companies, retailers and shopping malls, parking owners, constructors, public companies and banks, car dealers etc.

In Serbia, existing public recharging points are built by the Ministry of infrastructure and Public Company Roads of Serbia. In Greece, the local authorities are responsible for holding open tenders for the development of the EV recharging infrastructure. Any party that is interested in participating in the market can participate in the tender, except the DSOs. In Bosnia and Herzegovina, responsibility for building recharging infrastructure is with DSOs as well as with owners of shopping malls and parking places. In Moldova, building of recharging points is on the voluntary base, while in North Macedonia there is a large scale of investors such as private companies, DSOs, local authorities, banks, car dealers etc. Kosovo* reported that there is no current primary or secondary national legislation that deals with building publicly accessible recharging infrastructure for EV, which is the case in all CPs.

9. New technologies- V2G possibilities and smart metering

Several studies conducted across the EU⁷ show that EV charging may have a significant impact on electricity consumption i.e. increase in evening peak loads as a direct result of EV drivers charging their cars when returning home from work. Having in mind that EV load is flexible in time schedule, it may provide additional grid services through Vehicle to Grid (V2G) Services, which would leverage on the board battery to discharge electricity back to the grid when needed or provide ancillary services such as voltage regulation.

V2G opportunities are not yet considered in CPs and Greece. In addition, none of the V2G possibilities have been introduced yet. That is probably due to the still low penetration of EV in CPs.

Concerning smart metering, e-mobility should use intelligent metering systems when it is technically and financially reasonable, which means that EV may charge batteries from the grid at times of low general electricity demand. In that way, EV become powerful

⁷ Impact of Electric Vehicles charging on the Power grid, Lulea University of Technology, Sweden 2021, Effect of Electric Vehicles on Power Network, Faculty of Engineering and Information Technology, Romania, may 2020, Effect of Increased Electric Vehicles into a Distribution Network, Department of Electrical and Electronic Engineering University of West Attica, Greece, 2019

means for a more efficient grid management and represent a great opportunity for increasing grid flexibility.

Unfortunately, in all CP and Greece there is no obligation for installation of separate or smart meters for EV.

III. CONCLUSIONS AND RECOMMENDATIONS

1. The legal framework regulating issues related to e-mobility is essential for popularization and expansion of EV and recharging infrastructure. The EU legislation on this matter is a good base for the CPs planning to prepare relevant legal/regulatory framework. When introduction of EV and recharging infrastructure in CPs reaches certain level, detailed provisions should be adopted in the form of secondary legislation. All these activities rely on adequate national energy strategies and policies. Development of e-mobility depends also on governmental commitments to introduce supportive measures.
2. The role of NRAs will increase when the number of EVs and recharging points reach certain level in CPs. The NRAs should be prepared for that, because there is a large scale of possible competences and responsibilities related to e-mobility, such as setting connection costs for recharging infrastructure, licensing/registering charging points operators or service providers, setting special tariffs for electric vehicles users and preparing tender documentation for selection recharging point operator.
3. EV market in CPs is in a very early stage of development. Until the market becomes liquid, the national governments and local authorities have a role in selecting companies responsible for construction and operation of recharging infrastructure as well as in other e-mobility related issues.
4. Opportunities for more efficient grid management and introduction of new technologies such as V2G concept and smart metering regarding EV in CPs are still on the low level, due to the lack of legislation and non-existence of a liquid EV market.
5. Taking into account the results of this analysis and the status of e-mobility development in the CPs, it could be recommended to NRAs to support any national pilot program related to introduction of EV and recharging points or to any other e-mobility related issue.
6. Finally, the cooperation on different issues linked to e-mobility among energy and other regulatory authorities (in sectors such as transportation, telecommunication and data security) is necessary, because e-mobility challenges demand interdisciplinary approach..