

# Extending the Scope of ECM Certification

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The Commission Regulation (EU) No 445/2011 introduced requirements on certification system for Entities in Charge of Maintenance (ECM). It contains requirements regarding the need to create and, more importantly, verify by the certifying body of the Maintenance Management System (MMS). It assumes that only Entities in Charge of Maintenance for freight wagons will be subject to certification. With the development of legislation on the safety of rail transport the extension of ECM certification began. The article presents the proposal of the European Union Agency for Railways to extend the scope of Commission Regulation (EU) No. 445/2011 and discusses the most important changes.

**Keywords:** Maintenance Management Systems (MMS), Entity in charge of maintenance (ECM).

## 1. INTRODUCTION

In accordance with Article 14 of the Safety Directive [1], each railway vehicle before release to operation must have a designated Entity in Charge of Maintenance (ECM), entered into the National Vehicle Register in accordance with Article 33 of the Directive on the interoperability of the rail system [2]. This obligation was introduced through the implementation to the application of Directive 2008/110/EC of 16 December 2008 [3], amending the Railway Safety Directive. It allows concluding that after the implementation of Safety Management Systems (SMS) for railway undertakings and infrastructure managers and their validation, the legislator decided to extend the systemic approach to security and to extend similar systems to other types of entities [4]. In this way, Maintenance Management Systems (MMS) for Entities in Charge of Maintenance (ECM) were created. Further in Article 14 of the Railway Safety Directive, can be found records about the necessity of certify Entities in Charge of Maintenance (ECM), but only in the case of performing the ECM function for freight wagons. This means that a similar process of confirming the correctness (most often by the National Safety Authority) of

developing and implementing system documentation included only the selected group of ECM. This solution, introduced as a pilot and including at the same time the largest group of operated railway vehicles, allowed to assess whether the proposed approach to ensuring the safe maintenance of wagons is correct, and brings the expected results. It can be predicted that the scope of mandatory certification will in the future also be extended to other types of vehicles. Confirmation of this fact can be found in the Directive (EU) 2016/798 of 11 May 2016 [5] which is recast of the Safety Directive, which was published in connection with the substantial changes of the Safety Directive in the interests of clarity. In the recast directive, Article 14 is amended and expanded. According to the new Directive by 16 June 2018, the European Union Agency for Railways should evaluate the system of certification of the Entity in Charge of Maintenance for freight wagons, consider the expediency of extending that system to all vehicles and the mandatory certification of maintenance workshops and submit its report to the Commission. On the basis of the evaluation carried out by the Agency, the Commission should, by means of implementing acts, adopt, if appropriate, and when necessary, subsequently amend detailed

provisions identifying which of the requirements set out in Annex III shall apply for the purpose of the certification of Entities in Charge of Maintenance of vehicles other than freight wagons, on the basis of the technical characteristics of such vehicles, including detailed provisions to ensure the uniform implementation of the certification conditions by the Entity in Charge of Maintenance for vehicles other than freight wagons, in compliance with the relevant CSM and TSIs.

## 2 ACTIVITIES PERFORMED BY THE EUROPEAN UNION AGENCY FOR RAILWAYS

According to the information posted on the website of the European Union Agency for Railways, the Agency has received the mandate to draft recommendation on the revision of Regulation 445/2011 and possible extension of its scope by adding other types of vehicles. The mandate addresses in particular the following aspects:

- examine the feasibility of extending the scope of the certification of entities in charge of maintenance to all vehicles,
- examine the feasibility of extending the scope of the certification of maintenance workshops to all vehicles,
- identify common mandatory principles for the maintenance of the safety critical components,
- examine the feasibility of the certification of entities and workshops specialized in the maintenance of specific critical components,
- making amendments to Regulation 445/2011 as necessary to ensure better understanding and avoid risks of misinterpretation,
- propose revision of articles 1,2,6,9 and 12 and annexes of Regulation 445/2011.

The most important changes that should be analysed by the Agency are, of course, those related with including to the certification process ECM responsible for the maintenance of vehicle types other than freight wagons.

In connection with the above, on December 22, 2017, the European Union Agency for Railways announced a consultation on proposals to amend the content of Regulation 445/2011 on a system of certification of ECMs [6]. The following documents were submitted for consultation:

- impact Assessment,
- draft Implementing Act,

- report on safety critical components.

A particularly important document containing relevant information for entities that will be obliged to implement the Maintenance Management System in future is, in addition to the draft of regulation, the "Impact Assessment" document describing the positive and negative impact of the possible extension of the scope of Regulation 445/2011, possible problems related to its implementation and threats related to this process.

## 3. DRAFT OF COMMISSION IMPLEMENTING REGULATION ON A SYSTEM OF CERTIFICATION OF ENTITIES IN CHARGE OF MAINTENANCE FOR VEHICLES

In the draft of the Regulation presented by the European Union Agency for Railways, several changes can be found in relation to the original. The most important of them are presented below:

- in the proposal for a new version of the regulation, all references to freight wagons (both in the main text of the regulation and in the annexes) were changed to "vehicles". The most important change of this type is found in Article 2 of the Regulation defining its scope,
- in Article 3, which contains the definitions of terms appearing in the Regulation, the definition of "freight wagon" was replaced by the term "vehicle" which was defined as: "a railway vehicle suitable for circulation on wheels; a vehicle is composed of one or more structural and functional subsystems " [7],
- in Article 4 describing the "maintenance system", the description of the system divided into four functions has been removed (Management function, Maintenance development function, Fleet maintenance management function, Maintenance delivery function). Instead, the regulation refers to article 14 (3) of the Directive (EU) 2016/798 in which the objective division is located,
- in the Regulation appears a new record, in Article 6 on Certification bodies. It concerns the obligation to deliver a report to the European Union Agency for Railways every 3 years, the scope of which will be defined by the Agency,

- an important change is the proposal to extend the possible validity of the ECM certificate from five to a maximum six years,
- in the proposal of a new version of the Regulation appears a new annex, describing the scope of the annual report submitted by the Entities in Charge of Maintenance to Certification bodies. This annex is short and indicates the main areas that should be described in the annual report (such as: information on volume of maintenance carried out during the prevailing period, information about changes, information about internal audits etc.),
- the provisions of Article 9 of the Regulation have been expanded to include the information, that if a National Safety Authority has a justified reason to believe that a particular Entity in Charge of Maintenance does not comply with the requirements, it shall take the necessary decision in consistency with the Annex VI. A similar provision exists in the current version of the Regulation, but the novelty is the annex, in which the legislator described the possible actions that National Safety Authority can take,
- in Annex II describing criteria for accreditation or recognition of Certification bodies involved in the assessment and issue of ECM certificates, removed last requirement concerning liability and financing,
- the most important part of the regulation, i.e. Annex III containing requirements and assessment criteria for organizations applying for an ECM certificate has been subject to minor changes. Of course, as with the other provisions of the Regulation, all references to freight wagons were replaced by references to all types of vehicles. In the second point of the annex on risk management, the description containing the components of the risk management procedure, which should be implemented by the ECM in the Maintenance Management System, has been removed. This does not mean, of course, the resignation from this very important element of MMS, and at most allows a little more flexibility in the structure of the risk management procedure. In point 3, concerning monitoring, the entries regarding the necessity to apply the provisions of Commission Regulation (EU) No 1078/2012 [8] were added, which was not

possible in the original version due to the time in which it was published. In section II of Annex 3, which refers to the Maintenance development function, a provision has been added that the obligation to identify and manage all safety-critical components that is present in the current version of the Regulation should be in line with the new Annex VIII to the Regulation, which indicates how should be understood the term "safety-critical components". Another significant change in the Annex III is an indication both in sections II and IV of the annex, concrete, specific components of the vehicle, related to e.g. the door control systems, traction, signalisation systems, which should be paid special attention during the design process of vehicle maintenance and carrying out the activity,

- in the new proposal of the Regulation also changes the pattern of Entity in Charge of Maintenance Certificate and Maintenance Functions Certificate, in which the scope of ECM activities has been added, in which it is intended to indicate what types of vehicles the certificate applies to (freight wagons, locomotives, multiple units, passenger carriages, high-speed vehicles, OTMs, other).

#### 4. IMPACT ASSESSMENT

A very important and at the same time interesting document that has been published for consultation purposes is „Full Impact Assessment Revision of the Commission Regulation (EU) No 445/2011 of 10 May on a system of certification of entities in charge of maintenance for freight wagons and amending Regulation (EC) No 653/2007“. This document evaluates the impact of the change in the scope of the ECM certification regulation, identifies the most significant problems associated with it and the benefits that will probably result from this process. A very important part of the document is the indication (based on the comprehensive questionnaire (with 200+ respondents) launched by the European Union Agency for Railways in 2014), the main reasons for extending the scope of application of Regulation 445/2011. It was pointed out that this extension is necessary for reasons such as:

- need for a comprehensive (harmonised) certification scheme for all vehicles thereby resulting in reduced administrative burden,

- any ECMs do not currently provide a service for freight wagons only,
- advantage of a clear standardisation of rules for maintenance for all vehicles.

The most important part of the document is a fragment in which the authors present possible options for proceedings on extending the scope of the regulation. Six possible variants have been assumed which are shown in Fig.1.

bodies, Enhanced clarity in the definition/allocation responsibilities), and on the basis of individual components, the effectiveness of each solution was assessed as a whole. Based on the assessment, it was found that the most advantageous of the presented solutions, in terms of the criteria that were taken into consideration, are options 2 and 4, with the advantage of option 4, i.e. Revision of current Regulation and scope

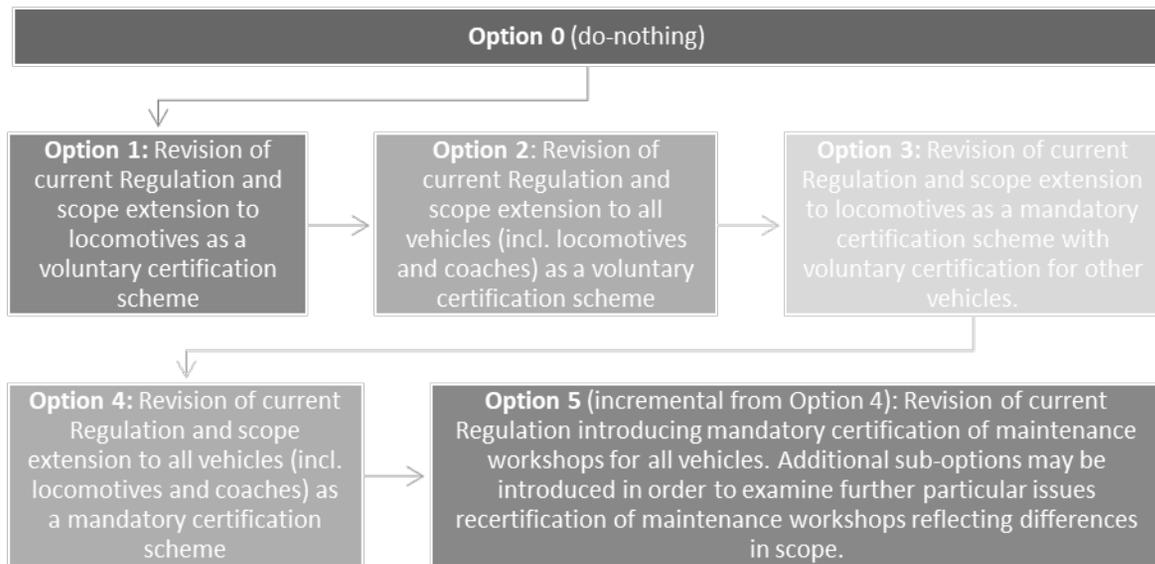


Fig.1. List of options of extending the scope of the regulation.

In the document, each of the proposed options is subject to a very detailed assessment. There were analysed positive and negative impacts of each of them on entities to which the extension will affect. Therefore, there were presented the most important advantages and disadvantages of individual variants for ECMs and Workshops, Railway Undertakings, Keepers, RST leasing companies, ECM Certification Bodies and National Safety Authorities. In addition, was made a summary and a comprehensive assessment of each option. After writing a verbal description of each variant, the authors made their numerical evaluation by estimating the effectiveness and efficiency of each of them, in a five-point scale (1-very low response, 5-very high response). In the case of the effectiveness assessment of individual solutions, the estimates were more comprehensive, as four areas for each option were assessed (Increase the efficiency for Railway Undertakings assurance of maintenance, Reduced duplicative customer certification, Reduced diversity of requirements and methods applied by certification

extension to all vehicles (incl. locomotives and coaches) as a mandatory certification scheme, as the most advantageous one. This fact was reflected in the proposed draft of regulation 445/2011, in which the scope was extended based on the assumptions of option No. 4. The document also indicates that based on the results of the consultations will be developed further document specifying impact assessment and it will be issued by May 2018.

### 5. SUMMARY

Maintenance Management Systems, which are the consequence of Security Management Systems, allow for increased safety in rail transport, through a transparent definition of the responsibilities for maintenance, and thus safe operation of vehicles by railway undertakings. As of today, the safety benefits of certified Maintenance Management Systems apply only to one type of railway vehicle - freight wagons. Since the introduction of the Commission Regulation (EU) No 445/2011,

railway operators and authorities expressed their willingness to extend its scope, in order to include locomotives and, more importantly, (due to the destination) the passenger rolling stock within the certification process of Entities in Charge of Maintenance. Independent observations as well as the results of audits and controls indicate, that the maintenance standards for passenger rolling stock are higher than for freight vehicles, but it is undoubtedly advisable also to include passenger vehicles with the process approach provided by Maintenance Management Systems. Work carried out by the European Union Agency for Railways aimed at extending the scope of certification is therefore extremely necessary or even required in order to continuously improve the railway system evolution and increase its level of safety. It is natural that this process due to its character and a very large range of impact (according to the document developed by the Agency, the number of ECMs affected by scope extension is 760) is a complicated and lengthy. However, it is to be hoped that the scope will be expanded soon, and today the Entities in Charge of Maintenance can and should carry out their own analysis of the possibilities and methods of extending their systems to cover the remaining types of vehicles for which maintenance is or may be in the future responsible.

## REFERENCES

- [1] Directive 2004/49/EC of the European Parliament and of the Council of 29 April 2004 on safety on the Community's railways and amending Council Directive 95/18/EC on the licensing of railway undertakings and Directive 2001/14/EC on the allocation of railway infrastructure capacity and the levying of charges for the use of railway infrastructure and safety certification (Railway Safety Directive).
- [2] Directive 2008/57/EC of the European Parliament and of the Council of 17 June 2008 on the interoperability of the rail system within the Community (Recast).
- [3] Directive 2008/110/EC of the European Parliament and of the Council of 16 December 2008 amending Directive 2004/49/EC on safety on the Community's railways.
- [4] Wachnik R., Drzewiecki A., *System Zarządzania Utrzymaniem Pojazdów Kolejowych (MMS)*, Zeszyty Naukowe Politechniki Śląskiej. Transport z. 73/1861 (2011), pp. 115-123.
- [5] Directive (EU) 2016/798 of the European Parliament and of the Council of 11 May 2016 on railway safety.
- [6] Commission Regulation (EU) No 445/2011 of 10 May 2011 on a system of certification of entities in charge of maintenance for freight wagons and amending Regulation (EC), No. 653/2007.
- [7] Draft Commission implementing regulation (EU) No .../. on a system of certification of entities in charge of maintenance for vehicles and amending Regulation (EU), No. 445/2011.
- [8] Commission Regulation (EU) No 1078/2012 of 16 November 2012 on a common safety method for monitoring to be applied by railway undertakings, infrastructure managers after receiving a safety certificate or safety authorisation and by entities in charge of maintenance.

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