EUROPEAN UNION AGENCY FOR RAILWAYS

Making the railway system work better for society.

ANNEX 3

Light Impact Assessment

TSI ENE – Technical Opinion 2017-3

	Elaborated by	*Validated by*	*Approved by*
Name	W. Malfait S. Lis I. Ballester	A. Harassek O. Gherghinescu	J. Engelmann
Position	Economic evaluation officer Project Officers	Head of Sector Economic evaluation officer	Head of Unit
Date	28/08/2017	Enter a date.	Enter a date.
Signature			

Document History

Version	*Date*	*Comments*
First draft	25/08/2017	
Second draft	28/08/2017	Comments S. Lis, I. Ballester
v03	30/08/2017	Review O.Gherghinescu

Contents

1. Context and problem definition

1.1. Problem and problem drivers	The request of the NSA Germany states that *"the current method referenced within the TSI ENE for the assessment of the pantograph sway and the contact wire position and the corresponding calculation method lead to* ***an increase of investment costs for the concerned projects by approximately 10%.****"* In order to comply with the assessment method from TSI ENE and therefore also EN 15273, the useable contact wire lateral position (based on displacement of the panto in terms of track axis) will be reduced up to 16% as compared to when the national calculation method is applied. In other words the result is a reduced value - up to 8 m- for spanlengths in comparison with DB standard contact line types.
1.2. Main assumptions	N.a.
1.3. Stakeholders affected	*Category of stakeholder*: IM *Importance of the problem*: 4 – mainly for DB, as reported to the Agency
1.4. Evidence and magnitude of the problem	Main sources of information as regards the magnitude of the problem: 1. ERA/2013/INTEROP/OP/01; Final Report, Tobback, Hauben, 12th Dec. 2013; p. 21 The 2 most representative overhead contact line (OCL) designs for the study are the conventional network OCLs Re100 and Re160, as most conventional lines are equipped with these OCLs and cover 75% of the [DE]-network. Since these OCLs were designed for the 1950mm pantograph, both wind blow-off and gauge are suspected to be correct. Above mentioned standard contact lines have been operated successfully on the basis of the national calculation method. The calculation method of TSI ENE (2014) and the parameters used need to be questioned in order to avoid the excessive reduction in span lengths and an increase of public or private investments for railway IM. 2. Calculation based on figures of impact on DB OCL-design (Germany): Estimated additional cost impact of reduced spanlength: › 10% reduction of spanlength (8m for 80 m spanlength) leads to 1.388 additional poles per single trackkm; › Average cost of 1 additional pole is estimated at 10 kEUR/pole

	⇨ Additional catenary investment cost of 13.8 kEUR/single trackkm This figure does not yet take into account the one-off cost to re-design the standard OCL-designs for the German network. The first electrification project in Germany which could be negatively impacted is the electrification of the line Emmerich-Oberhausen.
1.5. Baseline scenario	If no action is taken, the application of the current method referenced within the TSI ENE for the assessment of the pantograph sway and the contact wire position and the corresponding calculation method are likely to generate **additional catenary investment costs for the IMs**. However, it is worth mentioning that the problem has been already acknowledged and is already taken into consideration within the scope of the planned revision of the TSI ENE (period 2017-2019). Request for Standard (RfS 051) covers the request for a necessary revision of standard EN 50367, Railway applications - Current collection systems".
1.6. Subsidiarity and proportionality	The problem is linked to requirements within the TSI ENE.

2. Objectives

2.1. Strategic and specific objectives	☐ Europe becoming the world leader in railway safety ☐ Promoting rail transport to enhance its market share ☒ Improving the efficiency and coherence of the railway legal framework ☐ Optimising the Agency's capabilities ☐ Transparency, monitoring and evaluation ☒ Improve economic efficiency and societal benefits in railways ☐ Fostering the Agency's reputation in the world **Specific objectives**: 1. Ensure **an effective and feasible method of assessment** of the dewirement risk 2. Avoid **additional cost burden for the IMs** (This includes allowing the use of the existing standard OCL-designs in Germany, which demonstrated the appropriate handling of the dewirement risk)
2.2. Link with Railway Indicators	N.a.

3. Options

3.1. List of options	Option 0 (Baseline): no change to TSI ENE Option 1: Temporary solution in order to use the new standard until next TSI ENE revision Option 2: Permanent solution within TSI ENE with simplified and effective assessment of the dewirement risk
3.2. Description of options	**Option 0 (Baseline): no change to TSI ENE** The baseline is likely to induce additional investment costs for IMs (see 1.5) **Option 1: Temporary solution in order to use the new standard until next TSI ENE revision** Option 1 is proposed as mitigation measure in order to allow the continued use of existing OCL-designs, which demonstrated the appropriate handling of the dewirement risk, and in order to allow to deviate from the existing calculation method prescribed in the current TSI ENE. **Options 2: Permanent solution within TSI ENE with simplified and effective assessment of the dewirement risk** ERA initiated in 2015 the Requirement for a Standard (RfS) 051. RfS 051 covers the request for a necessary revision of standard EN 50367, Railway applications - Current collection systems". The revision is mainly driven by the adjustment of technical criteria for the interaction between pantograph and overhead line to fulfill interoperability requirements with the aim to simplify the assessment (and as such reduce the assessment costs). The working party of CENELEC SC9XC developed an effective method for the pantograph sway to define the permissible contact wire position. The application of the new calculation method aims at reaching a positive effect for the railway sector. The costs of investment for realising the overhead contact line should be reduced by optimisation of the calculation method of the pole distances for the overhead contact line. Option 2 requires the waiting time until TSI ENE will be revised to possibly capture the new proposed method.
3.3. Uncertainties/risks	In **Option 0**, technical experts within the Agency pointed out that the calculation method within the current TSI ENE does not include a strict definition of the working range (e.g. by not limiting the value of the working range to the contact strip in the calculation of dewirement risk) and as such might lead to a different result in OCL-design. It is not clear how far the use of a different/broader interpretation of the working range to handle the dewirement risk would not lead to a change of existing DB OCL designs with the use of the calculation method in the

	current TSI ENE. Nevertheless, the statement in section 1.4 that "*Above mentioned standard contact lines have been operated successfully on the basis of the national calculation method.*" is accepted by the technical experts within the Agency and therefore, the Working Party TSI ENE should re-assess the specific objective of mandating the harmonization of the calculation method within the TSI ENE as this case demonstrates the potential overregulation. As the new standard has not been evaluated and not handled within the Working Party TSI ENE, **option 2** is not feasible to develop or assess this as permanent change within the timeline provided for this technical opinion. Considering the risks and uncertainties associated to **Option 0 (Baseline)** as well as the time constraint for assessing the feasibility of **Option 2**, the recommendation is to proceed with Option 1, which responds to both specific objectives: 1. Ensure **an effective and feasible method of assessment** of the dewirement risk 2. Avoid **additional cost burden for the IMs**

4. Impacts of the options

4.1. Impacts of the options (qualitative analysis)

Category of stakeholder		*Option 1*
IM	Positive impacts	Keep existing OCL designs for German IM with long spanlengths (80 m).
	Negative impacts	N.a.
RU	Positive impacts	Interoperability is ensured
	Negative impacts	N.a.
NoBo	Positive impacts	N.a.
	Negative impacts	New methodology to learn for assessment of OCL designs
Railway sector	Positive impacts	German projects can act as evaluation case to assess the new methodology defined in the revised standard
	Negative impacts	N.a.
Overall assessment *(input for section 5.1)*	Positive impacts	Keep existing OCL designs for German IM with long spanlengths (80 m).
	Negative impacts	N.a.

4.2.	Impacts of the options (quantitative analysis)	N.a.

5. Comparison of options and preferred option

No comparison of options was necessary.

The only feasible option, which meets the specific objectives addressed by this technical opinion is **Option 1 Temporary solution in order to use the new standard until next TSI ENE revision.**

Option 0 is likely to generate additional costs and bears several costs and uncertainties.

Option 2 does not allow for a feasibility assessment within the timeline provided for this technical opinion.

6. Monitoring and evaluation

6.1.	Monitoring indicators	/
6.2.	Future evaluations	The next TSI ENE revision and its impact assessment should focus on in-depth evaluation of **Option 2** to optimize the assessments required for interoperability. This should reduce further the assessment costs for IMs and provide a more stable legal framework in providing the necessary freedom to designers of OCLs to ensure interoperability and manage the dewirement risk.