



# Climate Change & Standardisation

## A Sector Position Paper

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This Sector Position Paper is published by CER, UIC, EIM, UNIFE, UITP, UIP and ERFTC.

For drafting this Position Paper two CEN/CENELEC Technical Committees on Railways (CEN/TC 256 Railway Applications & CENELEC/TC 9X Electrical and electronic applications for railways) were consulted.

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### Introduction

Climate change, as a significant and lasting change in the weather patterns, will have an impact on the European transport system affecting all modes of transport (air, road, rail and waterborne). A significant change in weather conditions (i.e. more extreme weather events) is foreseen.

On the one hand, as a general approach, measures have to be taken to reduce climate change by decreasing emissions in order to reduce the effects of global warming; on the other hand initial steps have to be taken to adapt to climate change by preparing measures and methods for a robust European transport system.

In 2009 the European Commission proposed the White Paper “Adapting to climate change: Towards a European framework for action” (COM (2009) 147 final) in order to mitigate the damage arising from climate change and establish guidelines to prepare Europe for the impact of climate change.

## Scope of the Position Paper

The European railway system has been standardised and regulated for more than 150 years and is defined through a complex and large hierarchical Standardisation and regulatory landscape. Standardisation starts with the basic functional requirements at a company or activity level and goes up to European or International Technical Recommendations or standards like UIC Codes, UIC/UNIFE Technical Recommendations and CEN/CENELEC/ETSI European Standards / Technical Specifications or ISO/IEC/ITU standards.

The European regulation comprises a national framework as well as Technical Specifications for Interoperability (TSI) and the European Commission’s Directives ensuring the interoperability of the trans-European rail system. These TSIs do not apply to the urban rail systems.

**This Position Paper focusses on Standardisation because the sector sees this field as where the major activities require to be carried out. No changes in the present regulatory framework are considered necessary to deal with foreseeable climate changes.**

## Short term activities to adapt to climate change

The exchange of good practices should be intensified. Benchmarking studies within the sectors and cross sector information exchange platform could help to find solutions quickly and efficiently. The sector encourages the European Commission to continue issuing mandates for studies on the expected climate change in Europe in the coming decades which could provide a good starting point for the measures needed for climate change mitigation.

In this respect it is essential to point out that rolling stock and infrastructure have to be handled separately. Indeed the industry has already developed solutions for extremely variable climate conditions, noting that infrastructure adaptation is more challenging due to its life-time and sensitivity to climatic phenomena (e.g. flooding, landslides, etc.).

## Medium-term activities

In order to adapt the European railway system to climate change, the existing Standardisation needs to be adapted or extended accordingly. Firstly, a complete mapping of the existing standards and regulation is required to identify the gaps between the current situation of the overall rail system and subsystems and a target mainline railway system resilient to climate change. The existing R&D activities are to be taken into account (i.e. the ARISCC project ).

Any adaptation of the Standardisation landscape including the definition of a mainline target system with design parameters and limit values (incorporating the climate change and climate change reliance aspect into account) needs to be based upon well-focused research and development activities e.g. SHIFT<sup>2</sup>RAIL in the framework of Horizon 2020. In the ERRAC Roadmap on Design for Environment, the sector has already pointed out the need to address R&D activities in terms of climate change adaptation. These R&D activities must lead to fully exploitable results for Standardisation.

Taking into account the long life cycle of the rail system's components, up to 40 years for trains, up to 30 years for ballast formation and more than 75 years (up to 150 years) for bridges, the standardisation work has to be well supported and started as soon as possible allowing for the periodic replacement of the existing and fatigued components by new, improved and climate change resilient elements of the rail system. The major elements of the rail system to be considered for mainline (conventional rail) are: ballast formation, slab track, catenary & power supply systems, earthworks, drainage systems, water ducts and bridges as well as stations and buildings for the infrastructure, and rolling stock. Special attention is to be paid to vegetation and vegetation control.

In order to properly define the Standardisation framework for Climate Change Adaptation and to optimise the sector's action plan the different scenarios proposed in different parts of Europe by IPCC have to be considered.

It is to be underlined that only the existing rail Standardisation framework shall be revised to take climate change resilience into account. The creation of additional standards exclusively focusing on climate change aspects is to be avoided.

To facilitate the revision of the existing standards a checklist (matrix) could be prepared as guideline for revising and drafting standards. An identification of the scope (mainline passenger/freight), of the different players and a definition of their roles and responsibilities would need be added.

## Long-term activities to adapt to climate change

The European member states shall be encouraged to require and financially support a more resilient mainline (conventional) railway network for the future. (Implementation)

## Summary & Recommendation

**No changes** in the **present regulatory framework** are needed to effectively address the challenge the foreseeable climate change.

Any **adaptation** of the European rail Standardisation landscape including defining a target system with design parameters and limit values shall be **based upon well-focused research and development activities agreed by the rail sector (e.g. ERRAC Roadmap and SHIFT<sup>2</sup>RAIL)**.

**Only the existing rail Standardisation framework** shall be **revised** to take climate change resilience into account. A manual could be developed in order to incorporate the aspect of climate change into drafting and revision of standards.

The overall **process** (including R&D and drafting and revision) is **to be started as soon as possible** and to be carried out by 2020, as estimated in the ERRAC Roadmap. The **implementation** shall follow immediately afterwards and needs to be encouraged and supported by the members states.

## References

1. CER Workshop on April 19th, 2012
2. EU Workshop on June 18th, 2012
3. Sector Workshop on October 23rd, 2012
4. EU Workshop on November 8th, 2012

## The Partners

### CER

CER brings together 80 European railway undertakings, infrastructure companies and vehicle leasing companies, including long-established bodies, new entrants, and both private and public-sector organisations. In EU, EFTA and EU accession countries, CER members represent about 75% of the rail network length, more than 85% of the rail freight business and over 90% of rail passenger operations, with 1.2 million jobs directly created by CER members.

CER promotes a strong rail industry that can form the basis of a long-term sustainable European transport system.

[www.cer.be](http://www.cer.be)

### UNIFE

UNIFE is a European association that represents the interests of the railway supply industry in Europe at the level of both European and international institutions. Its membership comprises manufacturers and integrators of railway rolling stock, subsystems, components, signalling equipment and infrastructure. Its mission is to pro-actively develop an environment in which UNIFE members can promote rail market growth for sustainable mobility.

[www.unife.org](http://www.unife.org)

## EIM

EIM, the European Rail Infrastructure Managers, was established to promote the interests and views of the independent infrastructure managers in Europe, following liberalisation of the railway market. EIM works to improve the development of the rail transport mode. It also acts as an advocacy organisation towards the European Institutions and together with the industry. EIM provides expertise to the appropriate European bodies including the European Rail Agency (ERA).

[www.eimrail.org](http://www.eimrail.org)

## UITP

UITP (International Association of Public Transport), created in 1885, is the world-wide association of urban, suburban and regional passenger transport operators, their authorities and suppliers. Located in Brussels and with over 3,400 members from around 92 countries, UITP's main objectives are to study all aspects of public transport and mobility in order to promote the development of more efficient and attractive public transport services and to gain the maximum benefit from the latest available technology. UITP acts as a forum for transport operators and undertakings to exchange information and ideas on a world-wide basis. UITP is organised, with the support of its Secretariat General and European Department, into Commissions and Committees addressing specific issues related to all modes of transport. The rail committees are the Metro Committee, the Light Rail Committee and the Regional and Suburban Rail Committee, and rail positions have to be endorsed by the EU Committee.

[www.uitp.org](http://www.uitp.org)

## UIP

Founded in 1950, the UIP - International Union of Wagon Keepers, with its seat in Brussels, is the umbrella association of national associations from fourteen European countries, thus representing more than 250 keepers with approximately 180.000 freight wagons, performing 50 % of the rail freight tonne-Kilometres throughout Europe. UIP represents the members' concerns at international level. By means of research, lobbying and focused cooperation with all stakeholders and organisations interested in rail freight transportation, the UIP wants to secure on the long term the future of rail freight transport.

[www.uiprail.org](http://www.uiprail.org)





## EFRTC

EFRTC was founded in 1997. Membership consists of national federations, or where these do not exist national coordinators, representing the majority of specialist trackwork contractors for countries that are members of the European Union (EU), or the European Free Trade Area (EFTA). National federations and coordinators from other countries may be admitted as associate members. The principal objective of the EFRTC is to promote the common interests of its members - the specialist European trackwork contractors.

[www.efrtc.org](http://www.efrtc.org)

## UIC

UIC, the international railway association counts 200 members across 5 continents (railway companies, infrastructure managers, rail-related transport operators, etc.). UIC's chief task is to promote railway transport around the world and help its members to meet all the current and future challenges of mobility and sustainable development. UIC's cooperative undertakings aim to boost the railway system's competitiveness and interoperability, particularly on an international scale. The 700 technical standards which make up the "UIC Code" constitute a technical benchmark across the globe. UIC, as a technical platform coordinates circa 180 railway projects and provides its members with technical know-how and expertise.

[www.uic.org](http://www.uic.org)

**With the close collaboration of:**

CEN/TC 256 Railway Applications

CENELEC/TC 9X Electrical and electronic applications for railways

Sector Forum Rail

[www.cen.eu](http://www.cen.eu)

[www.cenelec.eu](http://www.cenelec.eu)

## Complementary Information

### Horizon 2020

Horizon 2020 is the financial instrument implementing the Innovation Union, a Europe 2020 flagship initiative aimed at securing Europe's global competitiveness. Running from 2014 to 2020 with an €80 billion budget, the EU's new programme for research and innovation is part of the drive to create new growth and jobs in Europe.

### ERRAC

ERRAC was set up in 2001 with the goal of creating a single European body with both the competence and capability to help revitalise the European rail sector and make it more competitive, by fostering increased innovation and guiding research efforts at European level. Within ERRAC, all major rail stakeholders are gathered. ERRAC comprises 45 representatives from each of the major European rail research stakeholders: manufacturers, operators, infrastructure managers, the European Commission, EU Member States, academics and users' groups. ERRAC covers all forms of rail transport: from conventional, high speed and freight applications to urban and regional services.

### IPPC

The Intergovernmental Panel on Climate Change (IPCC) is the leading international body for the assessment of climate change. It was established by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) in 1988 to provide the world with a clear scientific view on the current state of knowledge in climate change and its potential environmental and socio-economic impacts. In the same year, the UN General Assembly endorsed the action by WMO and UNEP in jointly establishing the IPCC.

The IPCC is a scientific body. It reviews and assesses the most recent scientific, technical and socio-economic information produced worldwide relevant to the understanding of climate change. It does not conduct any research nor does it monitor climate related data or parameters.

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