BRIEFING NOTE

September 2019

INTERNATIONAL UNION OF RAILWAYS

Adoption of new sustainable mobility commitments

Introduction

Scientific statements regarding climate change are alarming: even if countries around the globe meet their commitments made at COP 21 in 2015 for 2020, the planet will warm up by 3°C by the end of the century.

In order to stay in line with the Paris Agreement, countries need to multiply their ambitions threefold and carbon neutrality must be reached before 2050. According to the Paris Agreement, countries must renew or revise the climate commitments they submitted in 2015 (Nationally Determined Contributions (NDC)) upwards by the end of 2020. They must correspond to the "highest level of ambition possible". The EU has already undertaken to increase its targets for 2030 and is also working under the European Green Deal to become the world's first climate neutral continent by 2050.

UIC proposes to go one step further and is launching a communication campaign by revising some of the sector's commitments, both at a European level and at a global level.

European level

In 2008, CER adopted voluntary targets for Greenhouse Gas Emissions (GHG). These were later developed and expanded in partnership with UIC to include targets to be achieved by 2020 and 2030, in addition to a vision for 2050. In December 2010, the UIC European Regional Assembly approved targets and a vision for four important environmental impacts associated with the European rail sector:

- Greenhouse gas emissions
- Energy efficiency
- Air quality (PM & NO_x emissions)
- Noise and Vibration

Since then, the first three items (i.e. GHG, energy efficiency and air quality) have been supported by objective and measurable targets for which UIC collects data directly from around 23 European members and reports progress on an annual basis. To ensure credibility, this data is shared with official institutions, including the International Energy Agency (IEA).

Good progress has been made. The performance of the reporting members with respect to reducing greenhouse gas emissions has been so strong that we can see a significant advance. The UIC environmental database shows that the 2020 target for GHG emissions should be achieved in 2017 (ongoing 2019 collection) for passenger trains and was achieved in 2013 for freight trains. In addition, it is clear that the target of keeping total GHG emissions below the 1990 baseline is not challenging. This point is illustrated by the actual reduction of absolute emissions by 57% in 2016 compared to 1990 (Figure 3: Total GHG emissions in million tonnes CO2eq (ESRS 2018)).

EU regulation

In October 2014, the European Commission set recalibrated targets for GHG emissions under the Climate & Energy Framework:

- At least - 40% total CO_2 emissions by 2030 (1990 baseline year);
- - 30% total CO_2 emissions for non-ETS sectors (2005 baseline year);
- 32% of renewable energy use by 2030;
- 32.5% energy consumption by 2030.

Moreover, on 28 November 2018, the European Commission called for a climate-neutral Europe by 2050 in its Strategic Long-Term Vision.

When promoting the modal shift towards rail, it is crucial that the rail sector recalibrates its targets according to evolving European regulations and demonstrates yearly improvement.

Current targets, switching baseline and influence on targets

At the European level, the UIC Energy Efficiency and CO_2 Emissions Experts Network has already agreed to adopt the UIC and CER Carbon Neutrality "Vision 2050" as a new 2050 Carbon Neutrality Target.

It now wishes to strengthen the 2030 target for GHG emissions by reporting results against a new 2005 baseline, in addition to the existing 1990 baseline. There are three main reasons for this:

- Many UIC members are not able to provide their data for the 1990 baseline, which prevents UIC from monitoring their progress and including them in the reporting process.
- The 1990 baseline does not provide enough evidence to defend the railway sector in an international framework. In fact, the main improvement occurred between 1990 and 2005. In order to highlight recent and effective efforts, it would be strategic to switch the baseline.
- The European Commission is also setting some new targets with a 2005 baseline in its Climate & Energy Framework.

The new targets are the following:

In the following graphs, the yellow and grey lines represent the initial trend that had to be followed to achieve targets with 1990 as the baseline year. Changing the baseline year to 2005 means following the trend to targets illustrated by the purple, blue and green lines.

- 2030 goal for specific GHG emissions from passenger trains would be 24.8 gCO_2eq/pkm, corresponding to an additional effort of 5.1% (**- 55.1% for the 1990 baseline instead of - 50%**).

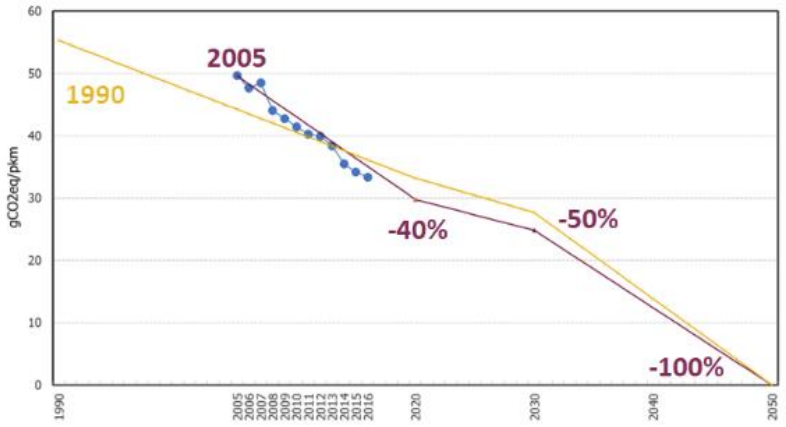


Figure 1: Specific GHG emissions from passenger trains in grams of CO_2 equivalent per passenger-kilometre (gCO_2eq/pkm, ESRS 2018)

- 2030 goal for specific GHG emissions from freight trains would be 12.7 gCO_2eq/tkm, i.e. additional effort of 12.0% (**- 62.0% for the 1990 baseline instead of - 50%**).

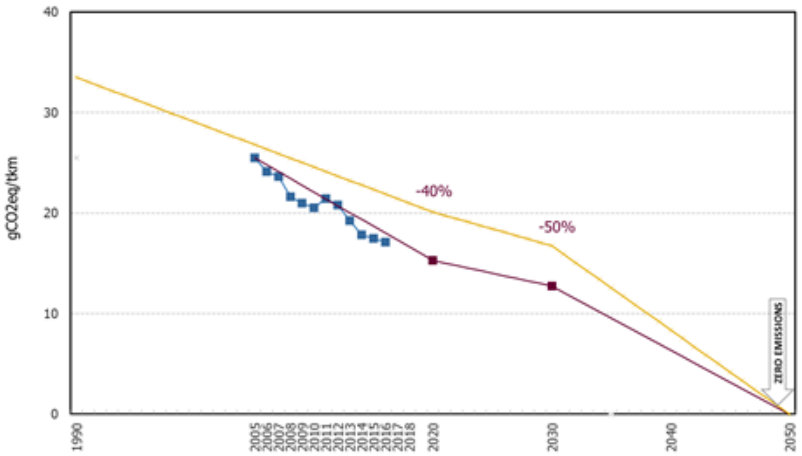


Figure 2: Specific GHG emissions from freight trains in grams of CO_2 equivalent per net tonne-kilometre (gCO_2eq/tkm, ESRS 2018)

- **The total GHG emissions - 30% target for the 2005 baseline essentially is - 53% for the 1990 baseline.**

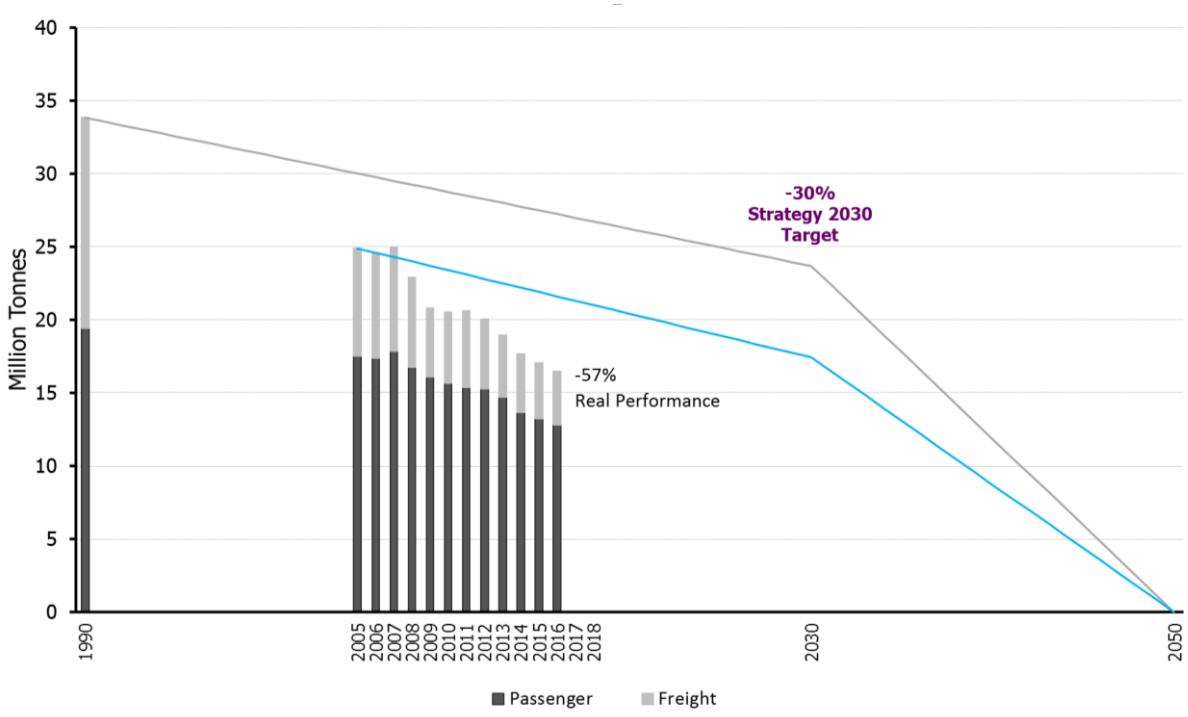


Figure 3: Total GHG emissions in million tonnes CO_2eq (ESRS 2018)

Energy efficiency (pending)

- Specific final energy consumption of passenger trains to be achieved by 2030 would be 0.086 kWh/pkm, corresponding to an additional effort of 8.6% (- 38.6% for the 1990 baseline, instead of - 30%); and 0.061 kWh/pkm in 2050, corresponding to an additional effort of 4% (- 54% for the 1990 baseline, instead of - 50%).
- Specific final energy consumption of freight trains to achieve by 2030 would be 0.042 kWh/tkm in 2030, i.e. an additional effort of 10.1% (- 40.1% for the 1990 baseline); and 0.0298 kWh/tkm in 2050 which means an additional effort of 5% (- 55% for the 1990 baseline).

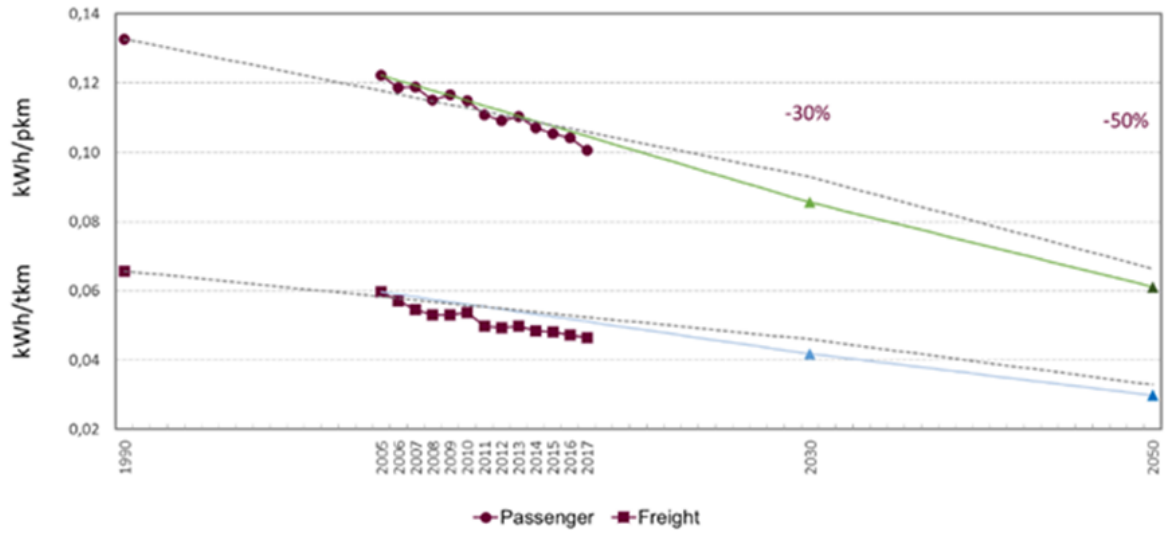


Figure 4: Specific final energy consumption of passenger trains in kilowatt hours per passenger-kilometre (top, kWh/pkm) and freight trains in kilowatt hours per tonne-kilometre (bottom, kWh/tkm). ESRS 2019.

The members of the European Region are asked to adopt these recalibrated sustainable mobility targets and support the rail sector's efforts to drive down harmful emissions whilst increasing stakeholder appreciation of rail as the cleanest major mode of transportation.

INTERNATIONAL UNION OF RAILWAYS

Global level

At the UN Climate Summit in September 2014, UIC presented the **Low Carbon Rail Transport Challenge**. This initiative sets out a vision for the development of the railway sector at the global level as a sustainable alternative to other modes of transportation that are more carbon intensive, such as road transport and aviation. The challenge includes three sets of voluntary targets: to improve rail efficiency, to decarbonize electricity supply, and to achieve a more sustainable balance of transport modes.

At this time, European and global targets were designed to be complementary, whilst reflecting the different realities at European and world level.

UIC is committed to reducing specific final energy consumption per traffic unit (50% by 2030 and 60% by 2050) and specific average CO_2 emissions per traffic units from train operations (50% by 2030 and 75% by 2050), all relative to a 1990 baseline.

In 2014, UIC also launched the Modal Shift Challenge, calling for investments that encourage a move to rail transport away from more carbon intensive transport options. The target was to achieve a 50% increase of the share of rail in passenger transport (in passenger-km) by 2030 compared to 2010, and a 100% increase by 2050. One key component of the Modal Shift Challenge was the **Railway Climate Responsibility Pledge**, which set out industry actions to complement the targets set for railways world-wide. During the Train to Paris high-level event in November 2015, this pledge was presented to high-level representatives of the United Nations. The Climate Responsibility pledge has been signed by more than 60 UIC members, representing most of global rail activity.

In 2019, UIC proposes to go one step further by aligning its 2050 CO_2 emissions target to something that is becoming more and more widely shared as a consensual target to achieve the Paris Agreement: carbon neutrality by 2050 (instead of - 75% by 2050).

Sustainable Development Goals (SDGs)

The role of sustainable transport is gaining recognition as an enabler of sustainable development. The former UN Secretary-General's Five-Year Action Agenda (2011 to 2016) specifically included transport as one of the six building blocks for the post-2015 sustainable development agenda. As we move into 2020, the railway sector must show that its benefits go far beyond CO_2 emissions. Railways as the backbone of sustainable transport make strong connections to a number of the goals and supporting targets, notably: energy efficiency (Goal 7), resilient infrastructure (Goal 9), access to sustainable transport (Goal 11), resilience to climate-related hazards (Goal 13), and promoting environmentally sound technologies & multi-stakeholder partnerships (Goal 17).

In 2019, UIC proposes to go one step further by announcing its willingness to support SDGs and to report its progress on the most relevant ones.

This exercise is part of the work undertaken by the Eco Scoring Working Group.

UIC proposes that the revised commitments should be made by means of a light declaration. The former commitments would consequently be revised:

- ESRS Methodology and Policy
- Low Carbon Rail Transport Challenge
- Railway Climate Responsibility Pledge

Members are asked to adopt the target of carbon neutrality by 2050 and to support the SDGs by means of a signed declaration to be presented at COP 25.

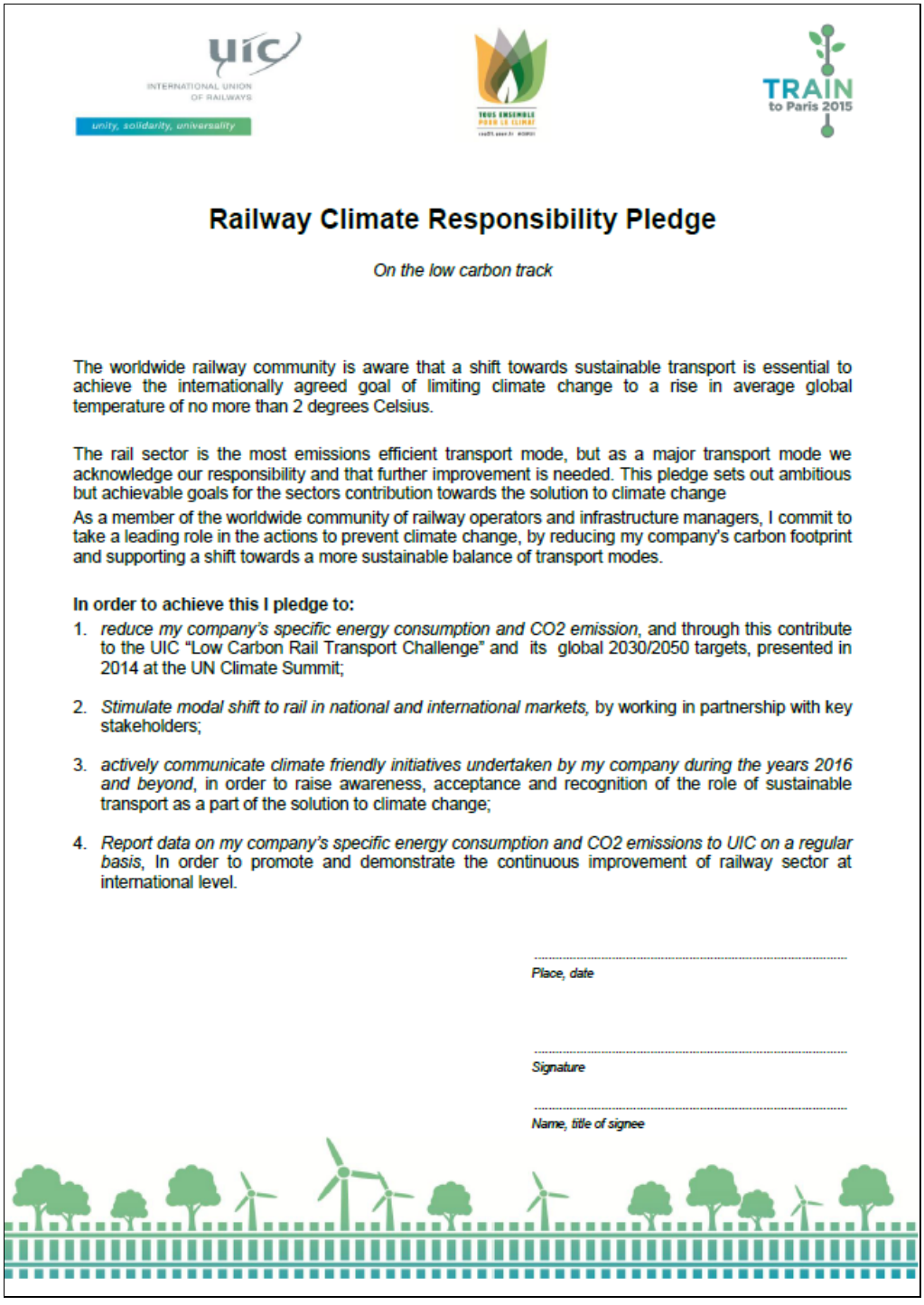
APPENDICES

European targets: summary table

The current targets, proposed baseline change and its influence are summarised in the table below.

Topic	Baseline	Horizon	Current target	Proposed change	Influence
Climate protection	1990 -> 2005	2020	- 40% specific GHG emissions (gCO_2eq/pkm & gCO_2eq/tkm)	Baseline year becomes 2005 instead of 1990	- 40% target for the 2005 baseline is - 46% for the 1990 baseline for passenger trains and - 54% for freight trains
	1990 -> 2005	2030	- 50% specific GHG emissions (gCO_2eq/pkm & gCO_2eq/tkm)		- 50% target is - 55% for the 1990 baseline for passenger trains and - 62% for freight trains
	1990 -> 2005	2030	Total CO_2 emissions 30% below the baseline		- 30% target for the 2005 baseline is - 53% for the 1990 baseline
		2050	Carbon-free operation		
Energy efficiency (pending)	1990 -> 2005	2030	- 30% specific final energy consumption (kWh/pkm & kWh/tkm)	Baseline year becomes 2005 instead of 1990	- 30% target is - 38.6% for the 1990 baseline for passenger trains and - 40% for freight trains
	1990 -> 2005	2050	- 50% specific final energy consumption (kWh/pkm & kWh/tkm)		- 50% target for 2005 is - 54% (1990) for passenger and - 55% for freight trains
Air quality	2005	2030	- 40% total PM and NOx		
		2050	Zero emissions		
Noise and vibration		2050	No longer a problem for the railways		

Former pledge



Railway Climate Responsibility Pledge

On the low carbon track

The worldwide railway community is aware that a shift towards sustainable transport is essential to achieve the internationally agreed goal of limiting climate change to a rise in average global temperature of no more than 2 degrees Celsius.

The rail sector is the most emissions efficient transport mode, but as a major transport mode we acknowledge our responsibility and that further improvement is needed. This pledge sets out ambitious but achievable goals for the sectors contribution towards the solution to climate change

As a member of the worldwide community of railway operators and infrastructure managers, I commit to take a leading role in the actions to prevent climate change, by reducing my company's carbon footprint and supporting a shift towards a more sustainable balance of transport modes.

In order to achieve this I pledge to:

1. *reduce my company's specific energy consumption and CO2 emission*, and through this contribute to the UIC "Low Carbon Rail Transport Challenge" and its global 2030/2050 targets, presented in 2014 at the UN Climate Summit;
2. *Stimulate modal shift to rail in national and international markets,* by working in partnership with key stakeholders;
3. *actively communicate climate friendly initiatives undertaken by my company during the years 2016 and beyond*, in order to raise awareness, acceptance and recognition of the role of sustainable transport as a part of the solution to climate change;
4. *Report data on my company's specific energy consumption and CO2 emissions to UIC on a regular basis*, In order to promote and demonstrate the continuous improvement of railway sector at international level.

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Place, date

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Signature

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Name, title of signee